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No. III. OF VOL. II., 1940. No. 6099. VOL. CCXXXIX. LONDON, SATURDAY, JULY 20, 1940. Founded 1823. PUBLISHED WEEKLY. Registered as a Newspaper. Pp. 72—Price 1s. Annual Subscription: Inland £1 2s. Abroad £1 10s.

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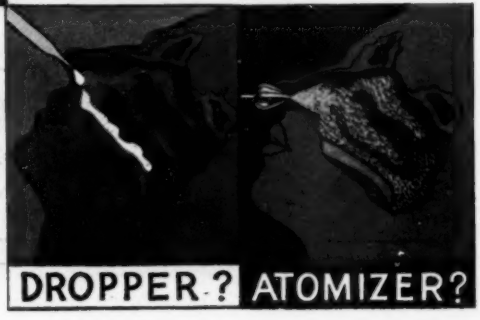

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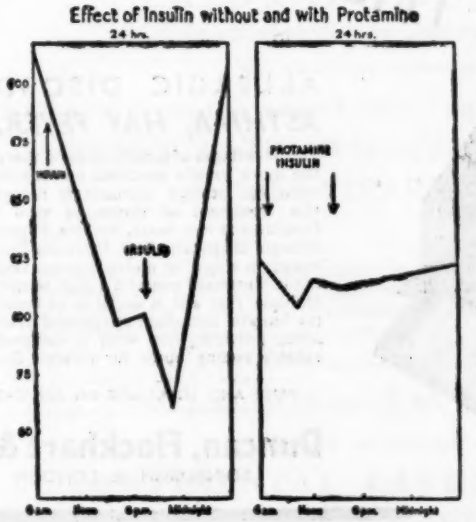

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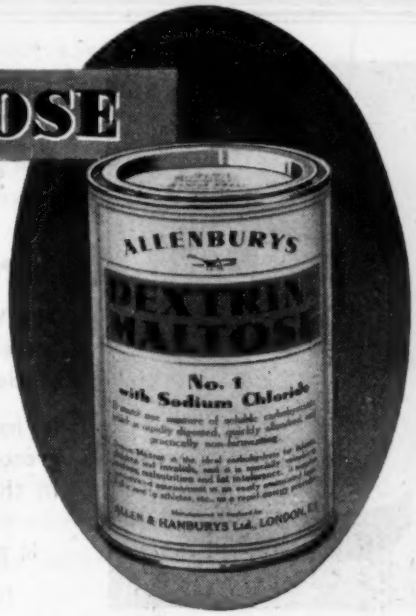

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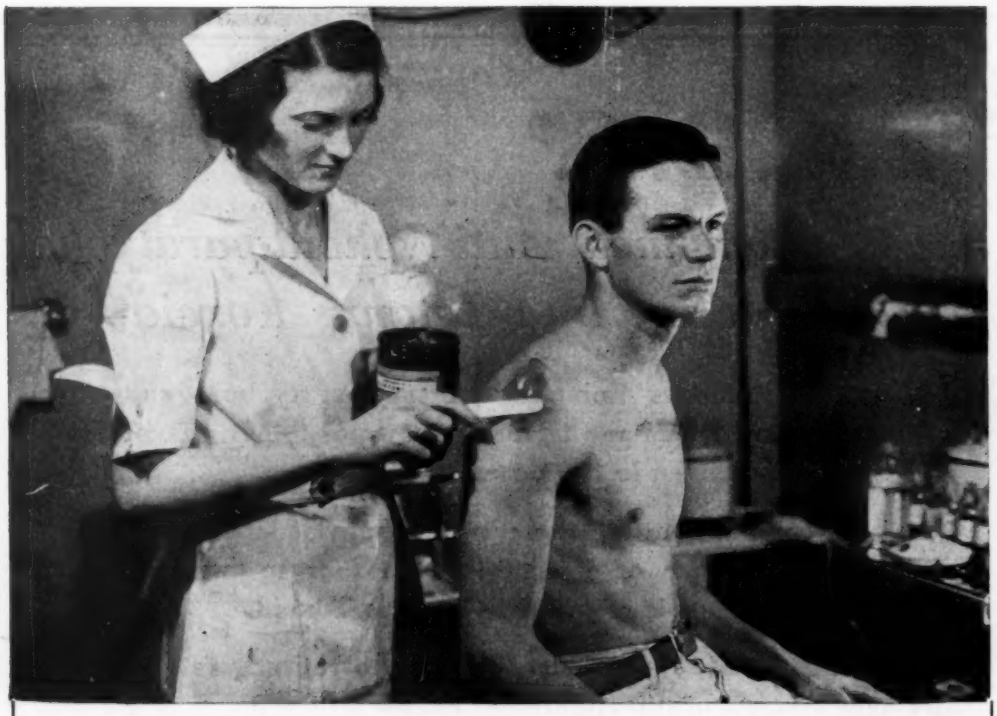

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ORIGINAL ARTICLES

MOTHERS UNDER SIXTEEN

BY LETITIA FAIRFIELD, C.B.E., M.D. Edin., D.P.H.

SENIOR MEDICAL OFFICER, GENERAL HOSPITALS DEPARTMENT, LONDON COUNTY COUNCIL

THE results of pregnancy and confinement in very young girls have often been the subject of speculation, but little accurate information has been available. Cases in this country are so uncommon that few people see enough to draw conclusions. Therefore a survey of 74 consecutive confinements in mothers under sixteen is of interest, showing what happens when nature is allowed to take its course. I do not dispute the wisdom of the condemnation by Western civilisation of very early motherhood on social grounds but merely desire to state the facts (see tables I–III).

The fields selected for survey were the maternity units of the London County Council hospitals and the Salvation Army Mothers' Hospital at Clapton, whose records were made available by the kindness of the respective authorities. The period chosen was 1931–38, because those were the years for which the L.C.C. records were available. Of 120,768 confinements in L.C.C. hospitals during those years 39 were of mothers under sixteen, and of 12,593 at the Mothers' Hospital 35. It is impossible to make any valid deduction about the total number of births in this age-group, because an unknown number of young mothers are confined at home and at other hospitals. For various reasons, however, it is probable that the great majority of these very young girls are, in London, confined in either L.C.C. or the Mothers' hospitals. The Salvation Army series also included, besides London residents, girls sent from outside London to the various hostels maintained in connexion with their social work.

The social background of the cases was very varied, obscure, and tinged with moral squalor. Where every pregnancy implies at least one offence against the law and sometimes several, there is every motive for concealment by relations and for reticence in the case-records. Some of the girls were known to have been the subject of legal proceedings, and nearly all were under the care of social workers. The impression gathered from the staffs who came in contact with them is that histories of assault were very uncommon. Some, especially among the younger girls, had been the victims of incest, while others were irresponsible and precocious children who had been running wild.

AGE AND MENTALITY

The youngest child in this series (thirteen years and three months at the date of confinement) was further remarkable because the putative father of her baby was also only thirteen. Of the paternity there can be no absolute certainty, but the little fellow had no doubt himself and even went so far as to borrow his elder brother's long trousers and bowler hat to visit his offspring with becoming dignity. He had indeed performed the remarkable feat of doing one of the few things which the law explicitly declares is impossible, for it is an "irrebuttable presumption" of English law that a boy under fourteen cannot procreate a child. The baby weighed 6 lb. 3 oz. and had a cleft palate but was otherwise healthy.

There are no girls aged twelve in this series, and authenticated instances of confinement at this age seem to be extremely rare. I can, however, recall 2 cases seen in the lasty thirty years. Both of these girls were the victims of incest, both had had easy and normal confinements, and both were very attached to their fine healthy infants. Their intelligence was normal, but they had shown no sign of mental shock; indeed they were particularly cheerful and self-possessed.

Only one of the 74 girls was a certified defective, and no other girl attracted notice as probably defective, although attention was given to this point. The ascertainment and supervision of defectives in the London area are very complete; yet the records of the department do not show any other example of a defective under sixteen having a baby during the relevant period.

ANTENATAL CARE

The amount of antenatal care which these girls had received varied so greatly as to defy classification. Most of the girls confined in the Mothers' Hospital had had several months of residence in a hostel under medical supervision and under good conditions as regards hygiene and diet. The 39 L.C.C. cases had, in some instances, been accommodated in poor-law institutions or in rescue homes, and others had attended the hospitals' antenatal clinics while living at home. Others did not apply for admission till in labour, and the history had to be obtained from the relations. Of 74 girls 68 had had antenatal care, and 9 of these showed a mild and transient toxæmia, which did not in any case persist after delivery. The only instance of eclampsia was a mild case at the thirty-seventh week; both mother and child did well. There was 1 case of antepartum hæmorrhage associated with albuminuria; the fœtus was anencephalic and had spina bifida. That 5 of the 74 girls were under treatment for gonorrhœa was not surprising, because the institutions from which the records were taken included two hostels for venereal disease under the Salvation Army and 1 special hospital and 3 venereal-disease units in general hospitals under the L.C.C. The entire absence of syphilis (routine blood tests were made in nearly all the cases) was an unexpected feature.

LABOUR AND PUERPERIUM

Premature labour.—The records of the 39 L.C.C. cases show that 8 of the pregnancies terminated spontaneously between the twenty-eighth and the thirty-eighth weeks, and in 2 cases labour was surgically induced. Among the 35 Salvation Army cases there was no instance of spontaneous prematurity, but there were 8 surgical inductions. The surgical induction-rate at this hospital is, however, high for mothers in all age-groups. Of the inductions 4 were for disproportion and 6 for toxæmia (3 of the latter being performed at term).

Full-term labour.—These girls of thirteen, fourteen, and fifteen had surprisingly short and easy labours, the average times being 18½ hr. at thirteen, 16 hr. 40 min. at fourteen, and 13 hr. 50 min. at fifteen. The forceps-rate (6 cases) was higher than for all cases either at the L.C.C. or at the Mothers' Hospital; but, since in 3 cases they were applied when the second stage had lasted less than 2 hours, it is possible that a natural desire to spare these child mothers unnecessary suffering was the strongest factor in producing a high rate. If the cases terminated by forceps are excluded, the times were 9 hr. 56 min. at thirteen (2 cases only), 13 hr. 55 min. at fifteen. None of the girls aged fourteen required forceps. Of the 72 labours of which there are full records 29 were completed spontaneously in less than 12 hours, a remarkable record for a series of primiparæ. There were only 4 cases with a really long first stage—i.e., 41 hours, 38 hours, 52½ hours, and 45 hours—and all these girls delivered themselves quickly once the os was fully dilated. There was only one example of uterine inertia: a girl aged fifteen had a short first stage of 6 hours and a prolonged second stage of 5 hours, terminated by low forceps. The baby weighed 7 lb. 1¼ oz. and did well.

Some of the individual records were indeed remarkable. A child aged thirteen had a baby weighing 8 lb. 6 oz. after a labour of 13 hours (the second stage lasting 1¼ hours), with no perineal tear. At fourteen another girl delivered herself of a baby weighing 8 lb. 4 oz. in 7 hr. 50 min. (second stage lasting 25 min.). A young professional dancer, aged fifteen, had had a baby weighing 8 lb. 14½ oz. after a labour of 3 hr. 45 min., the second stage lasting 1 hr. 15 min.

The third stage was, in all cases of which there are records—i.e., 72 out of 74—completed in 30 min. or less without any aid or interference; in 57 of these the time was 15 min. or less. There was one instance of moderate postpartum hæmorrhage.

It has been suggested that lacerations are specially common and severe in very young mothers, but of this there was no evidence. The task of assessing pelvic

TABLE I—CONFINEMENTS OF MOTHERS UNDER SIXTEEN

Age and No.	Abnormalities			Spontaneous premature	Surgical induction	Duration of labour								
						1st stage			2nd stage†			Total duration		
	Pregnancy	Labour	Puerperium			Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
13 (5)	1 tachycardia and raised blood-pressure	3 forceps	1 mild pyrexia	—	—	38 hr.	1 hr.	16 hr. 40 min.	2 hr. 45 min.	1 hr.	1 hr. 40 min.	40 hr. 30 min.	2 hr. 5 min.	18 hr. 30 min.
									*1 hr. 45 min.	*1 hr.	*1 hr. 25 min.	*13 hr.	*6 hr. 45 min.	*9 hr. 50 min.
14 (10)	1 gonorrhœa	—	2 mild pyrexia	—	2 (1 at 36, 1 at 39 weeks)	45 hr.	3 hr. 20 min.	15 hr. 38 min.	2 hr. 45 min.	20 min.	1 hr.	45 hr. 40 min.	4 hr. 15 min.	16 hr. 40 min.
15 (59)	1 eclampsia; 8 slight transient toxæmia; 1 mild pyelitis; 1 ischio-rectal abscess; 1 profuse vaginal discharge; 4 gonorrhœa	1 cæsarean section for disproportion, 1 A.P.H. at 28th week, 3 forceps, 1 P.P.H.	1 breast abscess, 6 mild pyrexia	8 (28th to 38th weeks)	7 (3 at term)	52 hr. 30 min.	1 hr.	12 hr. 35 min.	5 hr.	0 min.	59 min.	54 hr.	1 hr.	13 hr. 50 min.
									*2 hr. 10 min.	*0 min.	*52 „	*54 hr.	*1 hr.	*13 hr. 55 min.

* Omitting forceps cases; unaided deliveries only. † 3rd stage. All under 30 min., no complications.
A.P.H. = antepartum hæmorrhage; P.P.H. = post-partum hæmorrhage.

damage in any series of maternity cases is always difficult and becomes impossible when many different hospitals are concerned. It did not appear, however, that there was any greater frequency of first-degree and second-degree tears than in other groups of primiparæ, and no instance of serious damage was noted. One girl had notifiable pyrexia associated with a septic perineum.

Puerperium.—There was one abscess of the breast with pyrexia, and the records show 9 other examples of slight and transient rise of temperature in the puerperium. All the temperatures settled in a few days, and the mothers made rapid and uninterrupted recoveries.

MENTAL AND NERVOUS REACTIONS

In view of theories sometimes advanced about the mental effect of childbearing on the very young, careful inquiries were made from all available sources, but with negative results. The case-records showed not a single reference to unusual anxiety, depression, or nervous instability during pregnancy, labour, or the puerperium. Inquiry from the nursing and welfare staffs also failed to elicit any recollection of a nervous or mental crisis or breakdown. The general impression—recorded for what it is worth—is that these young girls take the ordeal very well; possibly the circumstances in which these pregnancies arise presuppose that they are likely to be of a primitive and insensitive temperament. One very experienced worker gave the opinion that they "accepted the course of events as natural and worried less than older girls because they realise the position less."

TABLE II—INFANTS BORN TO MOTHERS UNDER SIXTEEN

Age	Total births	Born alive		Stillbirths	Neonatal deaths	Congenital abnormalities
		No.	Average weight			
13	5	5	6 lb. 13 oz.	—	—	1 cleft palate
14	10	10	6 „ 3 „	—	2 (both 36th week)	1 cleft palate and webbed toes (died)
			*6 „ 10 „			
15	59	57	6 „ 11 „	2 (1 at 28th week anencephalic, 1 precipitate labour at term)	1 (32nd week)	1 anencephalus (still)
			*6 „ 15 „			1 hernia
						1 very slight talipes

* Omitting surgical inductions.

A search through the records of the London mental hospitals was not practicable in war-time; but, since all patients admitted to these hospitals (except private patients) pass through the observation wards of the L.C.C. general hospitals, it has been possible to cover the same ground. Indeed, the observation ward covers a much wider range of patients than the mental hospitals, for many patients with mild and transient mental disorder enter observation wards but are never certified under the Lunacy or the Mental Treatment Acts and so never reach a mental hospital. No girl under sixteen with mental disorder or nervous breakdown associated with pregnancy, labour, or the puerperium has been admitted to any observation ward in London during the period under review, nor do any members of the staffs remember such a case.

TABLE III—ANALYSIS OF INFANTS' WEIGHTS

Infants' weight	Age of mother			Total
	13	14	15	
8-8½ lb.	1	1	6	8
7-8 lb.	1	3	20	24
6-7 lb.	2	2	14	18
5½-6 lb.	—	—	6	6
Under 5½ lb.	1	3	8	12
Not stated	—	1	3	4
Total	5	10	57	72

INFANTS

In every group the average weight of the infants was below normal, as might be expected in the children of immature mothers. Exactly half the babies weighed 7 lb. or more, but the 18 immature infants weighing under 6 lb. each brought down the average. If the weights of infants resulting from surgically induced labours are excluded, the average weight is 6 lb. 13 oz. at thirteen, 6 lb. 10 oz. at fourteen, and 6 lb. 15 oz. at fifteen. Among the 74 cases there were only 2 stillbirths and 3 neonatal deaths, and of 5 infants only 1 had passed the thirty-sixth week of gestation. This exception was the child of a girl aged fifteen, who had had no antenatal care and gave birth to a stillborn full-term infant in the hospital receiving ward after a labour lasting less than an hour. There were no multiple births.

The high incidence of congenital defects—i.e., 2 cleft palates, 1 anencephalic fœtus, 1 inguinal hernia, and 1 very slight talipes—suggested that there might be a special liability to deformity in the children of very young mothers. Of these cases 4 occurred among the 39 L.C.C. patients and only 1 among the 35 Salvation Army cases. With such small numbers the possibilities of chance distribution have to be remembered, and no conclusion can safely be drawn.

Of the 64 infants on whose case-records the method of feeding is recorded 58 were breast-fed wholly or in part at the time of leaving the ward.

SUMMARY

(1) In a series of 133,361 deliveries in a group of twenty-three municipal maternity units and one voluntary hospital during 1931–38 there were 74 mothers under the age of sixteen at the date of confinement.

(2) Among these 74 mothers the maternity case-mortality was nil, and there were 2 stillbirths and 3 neonatal deaths. All the mothers made a good recovery.

(3) The case-records show a very slight increase, over the normal rate at the hospitals concerned, of forceps deliveries, surgical inductions, and slight morbidity in the puerperium.

(4) The labours were, with few exceptions, short and easy to an unusual degree. Complications, especially in the third stage, were rare.

(5) There was no evidence that maternity had produced excessive nervous or mental strain in these girls, and no case of mental or nervous breakdown has been traced.

(6) The average weights of the infants were below normal for mothers of older age-groups, owing to the excessive proportion of small immature infants in the series.

I have to thank Dr. Allen Daley, medical officer of health, L.C.C., for permission to publish this study; the staffs of the L.C.C. hospitals with maternity units, the Salvation Army, the staff of the Mothers' Hospital, Clapton, and particularly Miss M. Basden, F.R.C.O.G., for help and advice. The London County Council has no responsibility for the contents of this paper.

PENETRATING WOUNDS OF THE CHEST
EXPERIENCE IN THE LAST WAR

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THE problems relating to war wounds which must shortly confront the hospital staffs of this country on an increasing scale will probably resemble closely those encountered in casualty clearing stations on the western front during the last war. In general, however, it may be anticipated that cases will be admitted more quickly, for under the conditions then obtaining six, twelve, and sometimes twenty-four hours or more elapsed between the wound in the line and admission to the C.C.S., the first unit at which major surgery and expert nursing could be provided. Complications due to infection should, for this reason alone, be less common. Effective treatment of shock and hæmorrhage will be initiated earlier. More abdominal and cranial wounds will be successfully handled. Improvements in surgical technique will bring improved results in wounds of the limbs and fractures. Possibly the treatment of penetrating wounds of the thorax will witness less change of method, although the availability in some regions of skilled thoracic surgeons, mobile chest units, and special chest centres will undoubtedly play an important part. Changes in types of missile and fragment may alter the incidence of different types of wound.

I have recently unearthed a notebook containing the records of 130 cases of penetrating wounds of the chest admitted under my care at No. 10 C.C.S. (situated at Remy Siding, about eight miles from Ypres) during the second six months of 1917. These notes include a brief description of wounds, symptoms, signs, and progress; remarks on the bacteriology of hæmothorax specimens; temperature charts; in many instances the radiological localisation of foreign bodies; and in many fatal cases an abstract of post-mortem findings.

For the physician there is no more interesting group of war injuries. Every variety and combination of thoracic symptoms and signs may be encountered, and their value is in no wise lessened by access to expert radiology. Judgment in the matter of intervention or non-intervention must be critically cultivated. The investigation of cases by clinical, radiological, and bacteriological methods can be complete, and each method has its special uses. Whenever possible the coöperation between physician, surgeon, radiologist, and pathologist should be close. Chest wounds should be under the primary care of the physician when no specialist in thoracic surgery is available, and the specialist surgeon should always have a physician attached to his service.

The brief account of my experience which follows, even though it is now twenty-three years old, may be useful to others who have yet to see chest wounds on a large scale.

CASE-MORTALITY

The patients totalled 130, and 30 (23%) of them died. Since no patients were discharged to the base until shock, sepsis, and hæmorrhage were under control, and they were judged fit for the long train journey, it is unlikely that there was a high toll of subsequent deaths. Favourable reports on some of the more serious cases were ultimately received from the base or from England.

In 4 of the 30 fatal cases there were serious multiple wounds besides the chest wound; 7 patients died within twenty-four hours of admission; in 1 there was perforation of the gullet besides the lung and a tear in the aorta plugged with thrombus, the patient surviving to the third day; in 5 there was damage to diaphragm and liver or spleen. Operation (usually for drainage of an infected hæmothorax) was performed between the third and the fifth day in 15 of the fatal cases. From my notes of these cases it is difficult to suppose that this early mortality could have been appreciably reduced.

CLASSIFICATION

This series of 130 cases of penetrating wounds of the chest was classified into the following eight groups:—

(1) *Small penetrating wounds without hæmothorax* but with hæmoptysis, pleurisy, a small pneumothorax, or subcutaneous emphysema.

Cases and percentage 13 (10). No deaths.

(2) *Through-and-through wounds with sterile hæmothorax.*

Cases and percentage 12 (9). No deaths.

In neither of these groups was operation necessary, except on occasion to remove a fragment from under the skin.

(3) *Small or medium wounds with closed sterile hæmothorax.*

Cases and percentage 53 (40). Deaths 3.

This was the largest single group. Treatment, apart from general measures and local treatment of surface wounds, consisted in aspiration of the hæmothorax fluid in appropriate quantity and at appropriate times. Rib-resections and exploration for intrathoracic foreign bodies were very rarely necessary.

Thus in these first three groups, comprising 60% of all the cases, surgery was seldom indicated.

(4) *Small, medium, or large penetrating wounds with closed infected hæmothorax* (anaerobic or streptococcal).

Cases and percentage 18 (14). Deaths 4.

In all cases of this group operation for drainage of the pleura and sometimes removal of a foreign body was necessary.

(5) *Large penetrating wounds with "leaking" hæmothorax or "sucking" wounds, comminuted ribs, &c.*

Cases and percentage 25 (19). Deaths 14.

In the early stages plugging of the "sucking" or "leaking" wound with moist gauze was employed. In those patients who survived the immediate shock and trauma the operation for drainage, trimming of comminuted ribs, and sometimes removal of foreign bodies was performed later.

(6) *Through-and-through wounds with infected hæmothorax.*

Cases and percentage 7 (5). Deaths 5.

The principles of treatment were the same as for groups 4 and 5.

(7) *Penetrating wounds complicated by damage to diaphragm, liver, or spleen, or by other intra-abdominal trauma.*

Cases and percentage 4 (3). Deaths 4.

Such cases rarely came to operation.

(8) *Wounds of heart and pericardium.*—As a matter of interest I have also analysed those cases in which a penetrating wound of the chest was complicated by a wound of the pericardium, as shown radiologically by the position of foreign bodies within or sticking to the pericardium and by the presence of pericardial friction or of hæmopericardium. There were 9 such cases. In 1 the foreign body was located in the heart, and there was a hæmopericardium. In 2 the foreign body was located in the pericardium, and there was a hæmopericardium. In 5 the foreign body seemed adherent to the pericardium, and in 3 of these there was pericardial friction. All of these cases were evacuated to the base. The only fatal case was in a patient who lived forty-eight hours and was found at necropsy to have a hole in the pericardium with pericarditis and a hole in the right auricle. The largest fragment in a surviving patient was a rifle bullet lying apparently within the pericardial sac.

TREATMENT

If a patient is admitted in bad condition not attributable to other wounds, the cause may be one of the three following:—

(1) A "leaking" or "sucking" hæmo- or pneumothorax, calling for immediate plugging with wet Eusol gauze and a firm pad with strapping or a binder.

(2) A tension pneumothorax calling for relief with the needle. I never saw this as a complication of a penetrating wound; it is more likely to follow a crush injury.

(3) Penetration of the diaphragm by a fragment passing through the chest and lung with damage to one or more of the abdominal viscera.

A "leaking" hæmothorax usually shows a large entry or exit wound from which there is a considerable flow or trickle or rhythmical spouting of blood or bloody fluid. An audibly "sucking" or "open" pneumothorax explains itself and calls for similar immediate treatment.

The further immediate treatment in all such cases is the usual treatment for shock or hæmorrhage. Often there is remarkable improvement within a few hours. At some clearing stations early operations were performed on wounds due to larger fragments, but except in a selected minority of cases I was never fully persuaded, under the conditions then obtaining, of the advantages of early intervention, provided that a close twice-daily watch for infection of the hæmothorax was maintained.

The procedure in closed hæmothorax, apart from appropriate nursing, postural measures, and relief of dyspnœa and pain, was to wait until the second day and then to needle and withdraw a syringe-full of blood. This should be examined with the naked eye and the nose. The change from the appearances of normal blood or bloody effusion to the more fluid and purple appearance of laked or hæmolysed blood is soon appreciated. While it remains unlaked and sweet, there is no heavy anaerobic infection. In the presence of laking and smell the chest should be drained, and there is no need to await the bacteriological report. According to the patient's condition and the temperature chart, subsequent needlings for inspection and culture are carried out on the third or fourth and, if necessary, on subsequent days. The late Major Adrian Stokes, D.S.O., sometimes anticipated a positive culture by centrifugalising chest fluids and making a direct examination of films for bacteria. Only in later stages and with a streptococcal, staphylococcal, or mixed infection does hæmothorax give place to pyothorax. In aseptic cases a bloodstained may give place to a serous effusion. As a rule there is little or no air detectable by physical signs in a recent closed and sterile hæmothorax. When signs of a pneumohæmothorax develop in a closed case, it is generally in concert with a deterioration in the patient's condition and with the development of a muddy sallow complexion. The signs then indicate an infection with gas-forming anaerobes. Such a change should usually be anticipated by routine needling of the chest.

In patients with the graver "leaking" or "sucking" wounds of the chest who survive the first day or two surgical intervention will nearly always become necessary for purposes of drainage of an infected effusion, toilet of the wounds and comminuted ribs, and, when feasible, removal of the foreign body. The time for such action must be determined by the conditions obtaining in each case. I have no doubt that with earlier admissions and better treatment of hæmorrhage and shock early intervention will be undertaken more often than it was in 1917, and that the primary operations with removal of fragments, repair, and closure, of which Professor Gask was one of the pioneers in the C.C.S. next door to mine, will become more usual and save lives. Such primary operations should never be undertaken unless the patient is likely to remain under close observation.

OTHER SYMPTOMS AND COMPLICATIONS

Solid lung or traumatic pneumonia sometimes developed without or in addition to hæmothorax. Hæmoptysis after admission was not very common and rarely profuse. Bronchitis or bronchopneumonia in the uninjured lung, presumably from an inhalation infection, occasionally developed, and in one of my fatal cases a bronchopneumonia, thought to be due to simultaneous gassing, complicated a leaking hæmothorax.

Contralateral collapse—i.e., massive collapse affecting the lower lobe or lobes of the uninjured lung—attracted much attention and interest. It was so rare, however, among my cases, although carefully sought for, and apparently so common at the base hospitals that I concluded that the long journey in the train to the base with the patient lying on his sound side was an important contributory factor. Further, a similar contralateral collapse was sometimes reported in cases of buttock wounds without chest injury. Immobilisation on one side and hampered respiration, combined, perhaps, with viscid mucus or sometimes blood in a bronchus, seems to offer the best explanation of this sequel of a chest wound. Its symptoms and signs, although sometimes mistaken for those of consolidation, were not usually difficult to interpret. Although it temporarily increased respiratory embarrassment, contralateral collapse did not usually cause serious concern.

RADIOLOGY

Straight and stereoscopic X rays with a mobile plant often gave great help by determining both the size and the position of fragments and by confirming or modifying clinical assessments of physical signs. It was rarely justifiable to search for small fragments. Large fragments were necessarily more dangerous and were generally accompanied by sepsis. The radiologist today, with improved apparatus and methods, may be expected to give even more effective help than he did in the period under review.

ILLUSTRATIVE CASE-RECORDS

CASE 1.—Penetration with hæmothorax. Small shell wound in left lower chest. Much pain on respiration and pain in left shoulder tip. No hæmothorax but much limitation of movement. Radiography shows small fragment on dome of diaphragm and heart drawn to left. Temperature 100·2° F., pulse-rate 80, respiration-rate 28. Within twenty-four hours air entry improved and apex beat in normal position. Temperature, pulse-rate, and respiration-rate normal. Patient evacuated to base.

CASE 2.—Penetration, with sterile hæmothorax. Entry wound below right clavicle. Large hæmothorax. Radiography shows rifle bullet in lower limit of right pleura behind. Cultivation of hæmothorax fluid on third and fifth days sterile. Temperature only once exceeded 101° F. and fell to normal by seventh day. Aspirated once on third day. Patient evacuated to base.

CASE 3.—Sterile hæmothorax with pericardial trauma. Patient wounded on July 15, 1917. Multiple wounds of right leg, left hip and thigh, and left chest (penetrating). Left hæmothorax aspirated (1 pint) on the 16th and again on the 21st. Cultures sterile. Radiography shows foreign body on left aspect of pericardium moving with heart beat. Pericardial friction on the 17th. Purulent bronchitis developed. Patient discharged to base on 23rd. Later report from base: "good in respect of all wounds and general condition and marked improvement in left chest."

CASE 4.—Through-and-through wound, with "sucking" exit wound and infected hæmothorax. Patient wounded on Nov. 5, 1917. Through-and-through bullet wound from right of sternum (second space) to left axilla. Exit wound "sucking" on admission thirty-six hours later. Condition bad. Eusol plug and pressure. First culture on the 6th sterile. Lobar consolidation right side on the 7th. Specimen from left chest showed bacilli in direct film on the 8th; later the cultures gave gas. Pleural incision and drainage of fluid just beginning to smell on the 9th. Carrel's tubes. Much improved by the 19th. Pneumonia resolving. Patient evacuated to base on 21st.

CASE 5.—Leaking hæmothorax with perforation of diaphragm. Shell wound of back, penetrating chest. Leaking right hæmothorax; great pain and distress. Resuscitation measures and morphine. Patient died in twelve hours. Necropsy showed perforation of right lower lobe and diaphragm and a large fragment lying on liver. Much sticky mucus plugging bronchi of left lung, which showed patches of collapse in lower lobe.

CASE 6.—Wound of heart and pericardium. Patient wounded on June 9, 1917. Dirty wounds of right upper arm and shoulder. Small penetrating wound of left chest with hæmothorax. Radiography shows small foreign body in heart muscle and hæmopericardium. Cultures from hæmothorax

on 12th, 13th, and 14th all sterile. Patient evacuated to base on 15th with normal temperature, pulse-rate 90, respiration-rate 28.

SUMMARY AND CONCLUSIONS

In a consecutive * series of 130 cases of penetrating wounds of the chest admitted to a C.C.S. in 1917, the total mortality was 23%. In approximately 60% of the cases there was no indication for surgical intervention. The commonest type of case calling for watchfulness and decisions was the closed hæmothorax. Over 60% of all cases fell into this group. Of these, three-quarters remained sterile and were treated conservatively with aspiration. The gravest cases, as is well recognised, were those with a leaking hæmothorax or sucking pneumothorax or diaphragmatic injury. Simple drainage of the pleura because of infection was the commonest operation. Wounds of the pericardium with small fragments did not cause particular anxiety.

With prompter admissions of cases, earlier and better treatment of shock and hæmorrhage, a lower incidence and better treatment of infection, and earlier expert surgery, with repair and closure in a selected group of the graver "open" cases, a lowering of mortality should be possible. Improved technique should not, however, tempt the surgeon to interfere in those types of cases which have here been classified into groups 1, 2, and 3.

The examination of specimens obtained by routine needling plays an important part in the management of cases. Such specimens should be examined with the eye, the nose, by direct examination of films for bacteria, and by cultivation.

Patients with penetrating wounds of the chest should be submitted to as little movement as possible, and transportation from one hospital to another in the earlier stages should only be sanctioned on some very urgent plea. The probable contribution of posture to the development of contralateral collapse should be borne in mind.

* A group of cases admitted during my absence on leave was not included.

INTRAMUSCULAR ADMINISTRATION OF FLUIDS

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AND

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The administration of an adequate supply of fluids to the surgical patient is of immense importance in aiding recovery and essential to his comfort. Various routes are available: oral, rectal, subcutaneous, intravenous, intramuscular, and intraperitoneal. The oral and rectal routes are the best but are sometimes impracticable. With the proper technique 5000 c.cm. of fluid can be given per rectum daily (Jones and Morgan 1939). The disadvantages of the subcutaneous route are that it causes painful swellings and that absorption is slow. Further the subcutaneous administration of glucose may cause aseptic necrosis of the tissues. The intravenous route has gained eminence, but the intramuscular route has certain advantages. It is in no way new, for it was extensively used by Sir Arbuthnot Lane, and Prof. Grey Turner expressed his approval of it in 1915. Experience at the British Postgraduate Medical School has convinced us of its value.

ADVANTAGES

The time taken in inserting an intramuscular needle is negligible. In war-time skilled assistance may not always be available for the insertion of intravenous needles, but intramuscular administration can be left to an intelligent sister properly instructed in the technique. In intravenous therapy the body has no control over the amount of fluid thrust into the circulation; this leads to the risk of pulmonary œdema. When fluid is given intramuscularly the danger of pulmonary œdema is remote, for when the body has absorbed a sufficiency the surplus accumulates as local œdema at the site of injection. Moreover, the occasional difficulty in finding a suitable vein does not arise; glucose can be given without any risk of necrosis; and phlebitis and generalised systemic infection associated with rigors are eliminated.

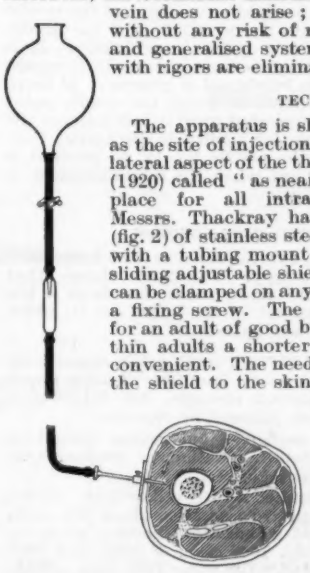

FIG. 1—Apparatus used in intramuscular administration of fluid at the level of the middle third of the thigh. The gauze that is placed between the shield and the skin is not shown.

TECHNIQUE

The apparatus is shown in fig. 1. We use as the site of injection the middle third of the lateral aspect of the thigh, which Grey Turner (1920) called "as nearly as possible the ideal place for all intramuscular injections." Messrs. Thackray have made us a needle (fig. 2) of stainless steel, 17 s.w.g., 4 in. long, with a tubing mount; this is fitted with a sliding adjustable shield, 1 in. by ½ in., which can be clamped on any part of the needle with a fixing screw. The 4 in. needle is suitable for an adult of good build, but for children or thin adults a shorter needle would be more convenient. The needle is fixed by strapping the shield to the skin, and a piece of sterile gauze is placed between the skin and the shield. Any injection needle, however, may be used, if it is long enough to penetrate the tissues nearly down to bone. It is wise to surround the portion of the needle outside the thigh with sterile gauze. If fluids are to be administered after operation, the needle should be inserted before the patient has recovered from the anæsthetic. One thigh may be used or both simultaneously; when both thighs are being used, a Y-shaped glass connexion should be interposed in the tubing leading from the flask. Each lower limb of the Y connexion then feeds fluid to a drip connexion, thus regulating the flow to each thigh.

At the British Postgraduate Medical School Professor Henry uses the intramuscular technique nearly as a routine, not only after operation, but also throughout the operation in any hazardous case. With more than twelve years' experience of this method he has not encountered a single case of infection. We have seen, however, one case of local infection. The strictest aseptic technique must be used; if the same aseptic ritual is employed as is practised in intravenous therapy infection will rarely be met with.

FIG. 2—Needle, 4 in. long, used in intramuscular administration of fluid.

The rate of flow should be regulated by the requirements of the patient. Unduly rapid administration leads to swelling of the thigh. A rate of about 40 drops a minute is suitable for most adults. The maximum of fluid that we have administered in one day by this route, using both thighs, is 4990 c.cm. We have given up to 600 c.cm. during partial gastrectomy for gastric ulcer. Fluid given intramuscularly cannot rapidly restore the volume of circulating blood, therefore in cases of massive hæmorrhage, where immediate blood-transfusion is not possible, the fluid should be administered

intravenously. If the patient does not really need fluids, it is unlikely that fluid will be absorbed from the muscles. In such a case intramuscular administration will again lead to swelling of the thigh.

Swelling will also be caused if the needle has not been inserted properly or in the right situation. If the needle is not inserted deeply into the muscles, or if the needle is too short, the fluid will collect superficially. If it collects subcutaneously there is danger of aseptic necrosis, especially if the solution employed is glucose. If there is any doubt about the depth at which the needle point lies the needle should be inserted until it just touches the bone and then withdrawn for a suitable distance. Care should be taken to fix the needle firmly, to prevent it from gradually slipping out when the administration is prolonged for several days.

ILLUSTRATIVE CASE-RECORDS

We describe here two typical cases in which we have used intramuscular therapy. The first shows that glucose solutions can be given intramuscularly; the second indicates the amount of fluid that can be given intramuscularly to a young patient.

CASE 1.—A male, aged 19, with acute pelvic appendicitis and local peritonitis of 48 hours' duration. Tongue furred and a little dry, but patient clinically not dehydrated. Appendicectomy performed, followed by recovery.

First day: vomiting negligible, but patient not taking appreciable fluids by mouth. Continuous intramuscular drip, 2900 c.cm. of 5 per cent. glucose.

Second day: patient vomited a little yellow fluid. Ryle's tube passed, and after repeated aspiration about 600 c.cm. of intestinal secretion was withdrawn. Nothing given by mouth. Intramuscular drip, 1000 c.cm. of saline and 2200 c.cm. of a 5 per cent. glucose. Tap water 1000 c.cm. administered per rectum. Total fluid = 4200 c.cm.

Third day: no further vomiting; tongue moist. Glucose solution 3000 c.cm. given intramuscularly.

Fourth day: patient taking sips by mouth. Intramuscular administration of glucose solution 2500 c.cm.

Fifth day: patient taking fluids satisfactorily by mouth. Ryle's tube out and intramuscular drip stopped. Further convalescence satisfactory. Patient discharged on twenty-fourth day.

CASE 2.—A girl aged 8 years. Appendicectomy with drainage of the peritoneal cavity. Subsequently developed an external intestinal fistula. Recovery. Fluids were given as follows:—

—	By mouth	Intramuscularly	Total
First day	1140 c.cm.	1000 c.cm.	2140 c.cm.
Second day	620 ,,	950 ,,	1570 ,,
Third day	1040 ,,	1700 ,,	2740 ,,
Fourth day	1440 ,,	3900 ,, (both thighs)	5340 ,,
Fifth day	2120 ,,	1200 c.cm. (both thighs)	3320 ,,
Sixth day	1900 ,,	800 c.cm.	2700 ,,
Seventh day	1980 ,,	1650 ,,	3630 ,,
Eighth day	1860 ,,	460 ,,	2320 ,,
Ninth day	1840 ,,	—	—

SUMMARY

The technique of continuous-drip intramuscular administration of fluid is described. This route has certain advantages over the intravenous where rapid absorption of fluid is not essential. The needle is more simply and quickly inserted, the body has more control over the amount of fluid absorbed, and the risks of infection are less.

We thank Prof. G. Grey Turner and Prof. A. K. Henry for their help in preparing this article, and Dr. W. Allen Daley, medical officer of health for the County of London, for his permission to publish it.

REFERENCES

Jones, A. and Morgan, N. (1939) *St. Bart's Hosp. med. Rep.* **71**, 1939.
Turner, G. G. (1915) *Lancet*, **2**, 673.
— (1920) *Ibid*, **2**, 819.

CAPILLARY RESISTANCE IN TOXIC MANIFESTATIONS OF ANTISYPHILITIC THERAPY

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THE effect of injections of Salvarsan in increasing the capillary fragility in man (the ease with which capillary walls burst as a result of the application of positive or negative pressures) was noted by Borbély (1930). Scarborough and Stewart (1938) showed the value of hesperidin (vitamin P) in the treatment of purpura occurring as a toxic manifestation of antisyphilitic therapy with arsenic and bismuth (hæmorrhagic capillary toxicosis of Frank). They found that the subjects examined had a low capillary resistance (increased capillary fragility), which was raised by the administration of hesperidin. We show here that erythema and dermatitis occurring as toxic manifestations of antisyphilitic therapy are also associated with a low capillary resistance. The capillary resistance was determined by a negative-pressure method, in which the resistance is measured in terms of the amount of suction in mm. Hg required to produce a single petechial hæmorrhage in the area of skin under observation. One or more of three standard areas were used, designated I, III, and V (see figures).

CASE-RECORDS

CASE 1.—Male, aged 52, with primary syphilis. Jaundice during second "unit" course of treatment with arsenic and bismuth in June, 1938. Treatment with a trivalent arsenical preparation was started again in August, 1939, and intolerance developed in December, 1939. There were three clinical manifestations of intolerance: jaundice (icteric index 18), mild dermatitis localised to the flexures of the elbows, and severe purpura with epistaxis, hæmatemesis, and extensive petechial hæmorrhage (thrombocytes 500,000 per c.mm.). The chart (fig. 1) shows the effect of vitamin P (hesperidin) in increasing the capillary resistance. There was a corresponding clinical improvement, and no further petechial hæmorrhages developed.

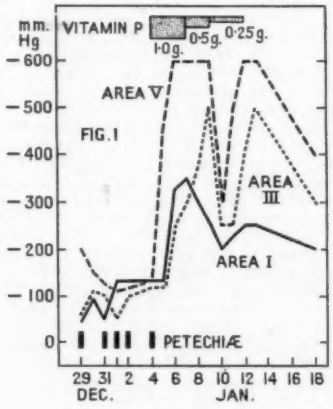
CASE 2.—Male, aged 53, with general paralysis of the insane. No previous intolerance to treatment. Toxic erythema developed during the second course of treatment with tryparsamide and bismuth. The chart (fig. 2) shows an associated decreased capillary resistance and the effect of vitamin P (hesperidin) in increasing the capillary resistance, after the apparent failure of vitamin C (ascorbic acid) to do so.

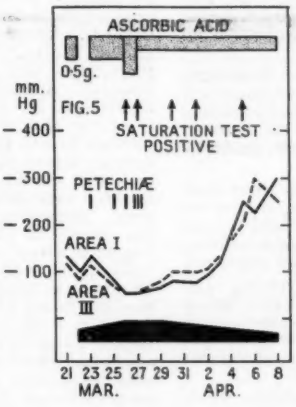
CASE 3.—Male, aged 27, with congenital syphilis (interstitial keratitis). Toxic erythema developed after the fourth intravenous injection of arsenic. The chart (fig. 3) shows the relationship between the administration of the drug, the erythema, and the capillary resistance. Orange-juice 200 c.cm. daily was administered over the period indicated in the graph.

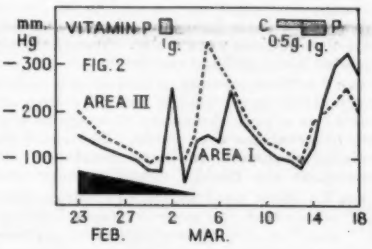
CASE 4.—Male, aged 39, with secondary syphilis. Intolerance developed during the first "unit" course of treatment with arsenic and bismuth. The chart (fig. 4) shows the association of the toxic erythema with a decreased capillary resistance. Orange-juice 100 c.cm. daily was administered over the period indicated in the chart.

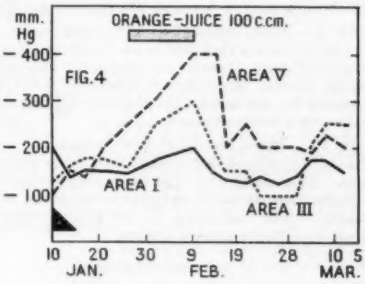
CASE 5.—Male, aged 29, with primary syphilis. Exfoliative dermatitis during first "unit" course of treatment. Treatment since with bismuth only. Exfoliative dermatitis developed after a single injection of a pentavalent arsenical preparation. The chart (fig. 5) shows an associated decreased capillary resistance, which gradually rose to a higher level as the clinical condition improved. The development of spontaneous petechial hæmorrhages (thrombocytes 450,000 per c.mm.) is shown on the chart. Vitamin C (ascorbic acid) was administered in large doses during the period indicated. Saturation was determined by a urinary-excretion test.

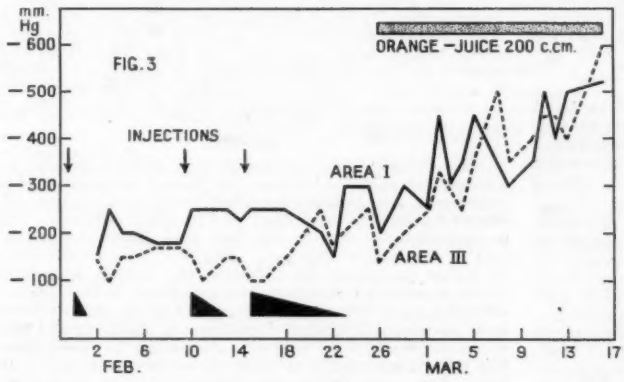
CASE 6.—Male, aged 56, with cardiovascular syphilis. Treatment with a pentavalent arsenical preparation and bismuth since April, 1938. Mild jaundice in June, 1939.

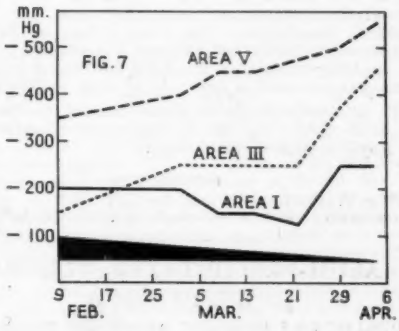


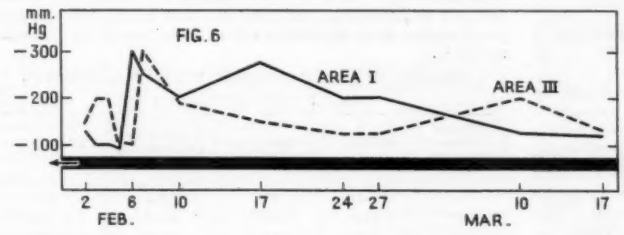


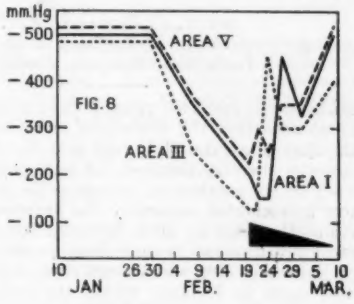


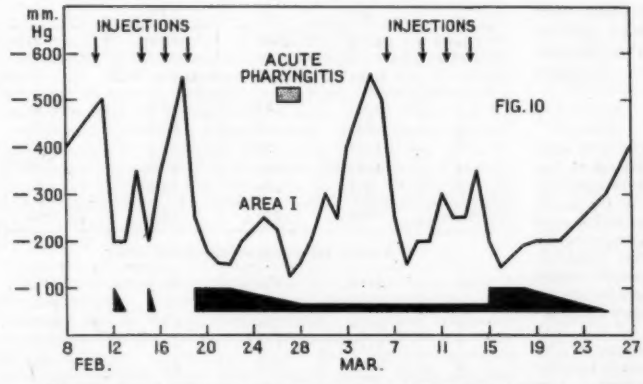


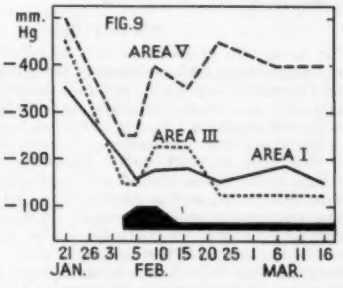












The presence of erythema and dermatitis is indicated in the figures by black areas. The doses of vitamins and orange juice shown are in each case daily doses.

Erythema developed in the middle of January, 1940, and persisted as a toxic dermatitis throughout the period during which observations were made. The chart (fig. 6) shows an associated low capillary resistance.

CASE 7.—Male, aged 58, with primary syphilis. Erythema developed during the second "unit" course of treatment and persisted as a toxic dermatitis throughout the period during which observations were made. The chart (fig. 7) shows an associated decreased capillary resistance, which gradually increased as the clinical condition improved.

CASE 8.—Male, aged 38, with primary syphilis. The chart (fig. 8) shows that the toxic erythema developing during the first "unit" course of treatment was preceded and accompanied by a lowering of the capillary resistance, which returned to its original higher level as the clinical condition improved.

CASE 9.—Male, aged 22, with secondary syphilis. The chart (fig. 9) shows that the toxic erythema developing during the second "unit" course of treatment was associated with a lowering of the capillary resistance. This low level was maintained for six weeks, during which period the intolerance persisted as a toxic dermatitis.

CASE 10.—Male, aged 38, with secondary syphilis. Toxic erythema developed after the first intravenous injection of arsenic. The chart (fig. 10) shows the relationship between the administration of the drug, the erythema, and the capillary resistance. The influence of an acute pharyngitis on the capillary resistance is also shown.

CONCLUSIONS

All the cases of toxic erythema and dermatitis investigated show an associated low (or decreased) capillary resistance. The observation of Scarborough and Stewart (1938) that vitamin P is a factor in increasing the capillary resistance has been confirmed in one case of toxic purpura and in one case of toxic erythema.

We acknowledge the facilities granted by Dr. R. C. L. Batchelor, director of the department of venereal diseases at the Royal Infirmary, Edinburgh.

REFERENCES

Borbély, F. (1930) *Münch. med. Wschr.* **77**, 886.
Scarborough, H. and Stewart, C. P. (1938) *Lancet*, **2**, 610.

ALUM-PRECIPITATED TOXOID IN DIPHTHERIA

DURATION OF IMMUNITY AFTER ONE-SHOT METHOD

BY F. C. FARAGÓ, M.D.

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DURING the last two years I have attempted in Hungary to ascertain the efficacy of one-shot immunisation with alum-precipitated toxoid and the duration of the immunity thereby induced. I had already tested the efficacy of the method on a large scale (Faragó 1938), so I now investigated especially the duration of immunity, particularly since no such investigation extending over several years seems to have been made, except that of Sigurjónsson (1939), whose work is most valuable because it was done in Iceland, where the influence of latent infection is almost negligible.

TECHNIQUE

The anatoxin content of the blood-serum before and after vaccination had previously been investigated at the State Hygienic Institute, but my investigations covered almost the whole of Hungary and were made on more than 22,000 persons; hence titration was impossible and Schick-testing was necessary. I have found repeatedly that this test is sufficiently reliable for mass control. The Schick-toxin contained a fiftieth of a minimal lethal dose in 0·1 c.cm., and conformed to the demands set up by the permanent commission of biological standardisation of the League of Nations. The results of the test were always read on the seventh day. I compared the efficacy of this Schick toxin with that prepared by the Wellcome Physiological Research Laboratories. The subjects tested were children who had been vaccinated exclusively by the one-shot method one to five years previously and had never received any other diphtheria antigen. These children had not even been Schick-tested before. They had been vaccinated by local physicians, who listed the names of the children vaccinated. According to the wishes of the Institute the children to be tested were chosen from these lists.

All the children were vaccinated with the alum-precipitated toxoid prepared by the Institute. The vaccine is made according to Glenny's original method, with some technical modifications (Faragó 1935), and 1 c.cm. was injected subcutaneously on the extensor side of the upper arm. According to experiments made at the Institute the purity of the precipitated and five times washed toxoid is about six times higher than that of the liquid toxoid. It contains about 2 mg. of alum per c.cm. Prigge, who kindly determined the antigen value of the vaccine, found 47 protective units per c.cm. The precipitate forms about a third of the total volume of the vaccine, and thus the vaccine prepared at the Institute contains considerably larger quantities of substances in suspension than similar preparations made abroad. The preparation of such a vaccine was justified by my observation (Faragó 1935) that the formation of a depot and the slow absorption, or a more lasting antigen-stimulus, is promoted by an increased amount of the precipitate. The reactions following the injection of the alum-precipitated toxoid were not more, or even less, than those caused by the old fluid toxoid. Hungary's population is accustomed to vaccination, and in carrying out the vaccination against diphtheria no difficulties whatsoever were experienced.

RESULTS

The Schick tests gave different results in the age-groups 2–6 and 7–11 years, the Schick immunity of the age-group 2–6 being somewhat lower and of somewhat shorter duration than that of the older children. This is undoubtedly due to the fact that latent infection is not so common at this age. Because of these differences it seems justifiable to tabulate the results separately. Table I contains therefore the results of Schick tests on children aged 2–6 who had received at the age of 2 their only vaccination against diphtheria in the form of 1 c.cm. of alum-precipitated toxoid. According to these figures the Schick immunity of children below school age is not ideal, but, from the practical point of view, sufficient a year after vaccination. Afterwards the immunity shows a slight tendency to fall, but the fall never reaches such proportions as to condemn the routine use of the one-shot method.

RESULTS OF SCHICK TESTS IN VARIOUS AGE-GROUPS

TABLE I—CHILDREN AGED 2–6

Years after vaccination	Schick tests	Positive reactions	Percentage of negative reactions	Probable error
1	3913	388	90·1	± 0·48
2	4355	688	84·2	± 0·55
3	4528	657	85·5	± 0·52
4	3159	517	83·6	± 0·66
5	480	89	81·2	± 1·60
Total	16,435	2339	85·8	± 0·27

TABLE II—CHILDREN AGED 7–11

1	1237	64	94·8	± 0·63
2	884	75	91·5	± 0·94
3	1171	99	91·5	± 0·82
4	1588	302	80·9	± 0·99
5	814	109	86·6	± 1·18
Total	5694	649	88·8	± 0·42

TABLE III—CHILDREN AGED 2–11

1	5150	452	91·2	± 0·39
2	5239	763	87·4	± 0·49
3	5699	756	86·7	± 0·45
4	4747	819	82·7	± 0·55
5	1294	198	84·7	± 1·00
Total	22,129	2988	86·5	± 0·23

Table II shows the results of Schick tests made on older children. About 80% of these children were vaccinated with alum-precipitated toxoid at the age of 7, and about 20% 1–2 years earlier. These figures show that the Schick immunity of this age-group surpasses that of younger children. It is regrettable that this age-group includes only about a third of the number of the younger children. This is due to the fact that in Hungary the vaccination of all school-children against diphtheria has been compulsory since 1938, and it was difficult to collect more children belonging to this age-group.

These figures show a fairly sufficient Schick immunity in children vaccinated 1–5 years earlier. Schick immunity is lower in the fourth year after vaccination than in the fifth. This is especially remarkable in the age-group 7–11 (table II) and is hardly explainable by the lower number of children tested five years after vaccination.

The Schick immunity of children vaccinated at 2 and revaccinated at 7 was also investigated. Such revaccinated children were found in Mezökövesd and Jászberény; the results of Schick tests made on them are given in table IV. These results may be regarded as the maximum of Schick immunity that can be achieved by immunological methods, and they show that the decree which made vaccination against diphtheria compulsory in Hungary specified the best method.

To prevent misleading results as far as possible, every effort was made to avoid Schick testing in certain regions only and thus testing the efficacy of the one-shot method

TABLE IV—RESULTS OF SCHICK TESTS IN REVACCINATED CHILDREN

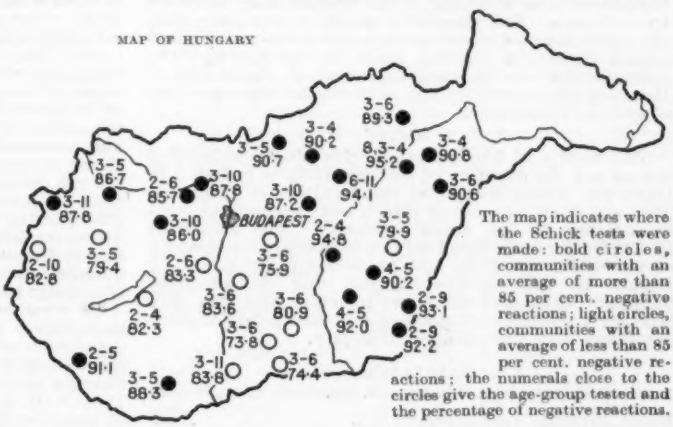
Years between the two vaccinations	Schick tests	Positive reactions	Percentage of negative reactions	Probable error
4	631	23	96·4	± 0·74
5	622	27	95·7	± 0·81
Total	1253	50	96·0	± 0·55

under the particular epidemiological conditions prevailing in a restricted area. The investigation was therefore organised in all regions of the country, including all epidemiological conditions existing at present in Hungary. The map shows the regions in which the Schick tests were made. Taking the different regions separately, we see that Schick immunity is higher in the eastern than in the western half of the country; most probably differences in the frequency of latent infection are responsible for this. The frequency of latent infection is, in its turn, probably influenced by the differences, though slight, between the standards of living of the population in the eastern and western parts of the country. The incidence of diphtheria in the various regions does not help to explain the differences of Schick immunity. The general cultural level and the financial standing of the population in the western half of the country is to some extent better than in the east. If we compare neighbouring communities in the same region, the differences in Schick immunity found are just as difficult to explain. For instance, the town of Papa in the western half of the country, with a population of 21,000, has a lower rate of Schick immunity than has the neighbouring village of Ádánd, with scarcely 3000 inhabitants.

DISCUSSION

Before the mass vaccination no Schick tests are carried out in Hungary. The last large-scale Schick testing was made by me in 1933, when I found in three different areas that 70–88% of the children aged 1–8 years were Schick-positive. Applying these data to the present investigation one may say that roughly 20% of the vaccinated children had a Schick immunity before vaccination; therefore the results are somewhat less favourable than shown in the accompanying tables.

Vaccination against diphtheria was introduced into Hungary by Tomcsik (1932). As a consequence of his investigations the toxoid, at that time the most powerful antigen, was widely adopted. His promising experimental results with liquid toxoid and the satisfactory field work



The map indicates where the Schick tests were made: bold circles, communities with an average of more than 85 per cent. negative reactions; light circles, communities with an average of less than 85 per cent. negative reactions; the numerals close to the circles give the age-group tested and the percentage of negative reactions.

with it led to a wide extension of vaccination, which was made obligatory by many local authorities. Thus, in 1934, vaccination was compulsory in 25 out of 36 counties and municipalities. Vaccination against diphtheria was still more rapidly extended when the one-shot method with alum-precipitated toxoid was introduced in 1935. By this method it is possible to vaccinate large numbers of children even in regions where the population is scattered on isolated farms. Up to Jan. 1, 1940, the Institute prepared and supplied vaccine sufficient for the vaccination of 2,413,000 people. Vaccination against diphtheria became compulsory by law in Hungary on Jan. 1, 1938. Children are first vaccinated at 2 years of age and revaccinated on entering the elementary school at 7 years of age. The vaccine is sent free of charge by the Institute to health officers and physicians in official positions. The fees for vaccination are paid by the state. Since vaccination was made compulsory about 500,000 doses of alum-precipitated toxoid have been produced and delivered every year in the Institute.

The incidence of diphtheria is on the decrease in Hungary and there is no reason why this should not be attributed to vaccination. Johan (1939) compared the diphtheria morbidity-rates in Hungary with those of some European states. The data given in table V show

TABLE V—MORBIDITY-RATES OF DIPHTHERIA IN SOME EUROPEAN COUNTRIES

(Rates per 100,000 inhabitants.)

—	1931	1932	1933	1934	1935	1936	1937	1938
Hungary ..	197·3	221·7	176·2	154·5	96·5	84	81·6	68·9
Austria ..	231·1	321·7	307·8	371·9	331·8	299	288·4	—
Czecho-Slovakia ..	148·9	215·4	198·3	227·0	188·5	173	191·1	—
Germany ..	189·3	100·8	114·3	173·8	197·2	228	218·6	219·0
England ..	125·8	108·8	117·6	169·9	160·4	146	152·2	159·8

that since 1932 the morbidity in Hungary has fallen steadily, whereas the rates for the other countries remain more or less level. The fall in mortality in Hungary is still more conspicuous. Since 1931 the diphtheria death-rates per 100,000 inhabitants were: 17·2 in 1931, 18·3 in 1932, 13·3 in 1933, 9·6 in 1934, 6·5 in 1935, 5·7 in 1936, 4·2 in 1937, and 3·2 in 1938. Between 1932 and 1938 mortality diminished to a sixth and morbidity to a third. Johan (1939) has shown that, since vaccination has been carried out on a large scale, the proportion of diphtheria patients over ten years of age has increased.

The effect of vaccination is undoubtedly assisted by latent infection, which can be regarded as an antigen

stimulus maintained by nature. We do not yet know whether or not vaccination will be followed by a dimunution of latent infection. Dudley (1934) observed the contrary in a closed institution. My own observations (Faragó 1935) show that vaccination does not alter the frequency of latent infection in the field, but if latent infection does become less frequent as a result of extended vaccination one injection of the vaccine may not then be sufficient. This possibility makes it necessary that the result of one-shot vaccination with alum-precipitated toxoid should be checked again in the future. The centralisation of the campaign against diphtheria in Hungary offers excellent opportunities for the repetition of such investigations.

SUMMARY

The results of immunisation with alum-precipitated toxoid and the duration of the immunity were tested in thirty-one towns and rural communities in Hungary. This was done by making Schick tests on children vaccinated one to five years previously. The results of 22,129 Schick tests were analysed separately for children of pre-school age (2–6) and for school-children (7–11). Results in both groups indicate that an adequate immunity developed after one injection and that this lasts for a sufficiently long period in the epidemiological conditions now prevailing in Hungary.

REFERENCES

Dudley, S. F. (1934) *Spec. Rep. Ser. med. Res. Coun., Lond.*, no. 195, part 2.
Faragó, F. (1935a) *Amer. J. Hyg.* **22**, 495.
— (1935b) *Z. ImmunForsch.* **86**, 191.
— (1938) *Z. Hyg. InfektKr.* **120**, 515.
Johan, B. (1939) Rural Health Work in Hungary, Budapest.
Sigurjónsson, J. (1939) *Z. Hyg. InfektKr.* **122**, 189.
Tomcsik, J. (1932a) *Z. Bakt.* **125**, 443.
— (1932b) *Ann. Inst. Pasteur*, **49**, 574.

TREATMENT OF WOUND SHOCK WITH CORTICOSTERONE

BY HANS SELYE, M.D., Ph.D., AND CHRISTIANE DOSNE, B.Sc.

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DURING the last five years while our group was engaged in a study of the physiological responses to non-specific damage, it was found that the symptoms and signs elicited by noxious agents depend merely on the intensity of the damage and not on its specific nature. Thus stimuli such as trauma, cold and drugs all result in the same type of response, which has been termed the "alarm reaction" (Selye 1936 a, b). It soon became evident that the adrenal cortex, which shows histological signs of increased activity, plays an important rôle during this reaction and it was assumed that increased production of adrenal cortical hormones is essential for the development of the so-called "counter shock" phenomena which follow the first "shock-phase" in the course of the alarm reaction.

The idea of increased production of cortical hormone received support through the important observations of Weil and Browne (1939 a, b), who found unusually large quantities of cortical hormone in the urine of patients who underwent various surgical operations or suffered from other conditions capable of eliciting an alarm reaction. A large number of investigators have since studied the value of adrenal cortical compounds in combating non-specific damage induced in various ways, but excepting a few clinical reports nothing has been published on the action of such therapy in traumatic shock. These clinical observations were inconclusive because the experimental and control cases were not always comparable, and treatment with adrenal compounds was invariably aided by other therapeutic measures such as sodium chloride administration or transfusion. The lack of experimental evidence on such an important subject is rather surprising, especially since a leading article in THE LANCET (1940, **1**, 555) and publications by Varangot (1940), Pollak (1940) and others have emphasised that the findings in the alarm reaction appear to make the success of such experiments very likely. We believe that other investigators working on this problem found, just as we did, that it is difficult to combat traumatic shock with the cortical preparations now available. This, as we shall see, is probably due to the fact that relatively large amounts of certain cortical steroids are required for this purpose while other compounds present in adrenal extracts are actually harmful.

The first experimental evidence showing that an adrenal cortical extract is effective in preventing shock induced by a surgical operation was our demonstration of the result of such therapy in rats damaged by partial hepatectomy (Selye and Dosne, 1940). Later we were able to show that large doses of cortical extracts prevent shock caused by intestinal trauma and other means in the rat (Selye, Dosne *et al*, 1940). Similar results have been obtained in the rabbit by Weil and his associates (1940) of the Royal Victoria Hospital of this university. These investigations showed, rather surprisingly, that desoxycorticosterone is usually inactive, even if large quantities are administered, and under certain conditions is actually harmful in such cases.

In view of these observations it was obviously of importance to establish which among the adrenal steroids present in crude extracts are active in the treatment of traumatic shock. The Wilson Laboratories of Chicago provided 400 lb. of cattle adrenal from which Prof. E. C. Kendall of the Mayo Clinic prepared 50 mg. of corticosterone for our experiments. With this we showed that, unlike desoxycorticosterone, corticosterone (which differs from it by the presence of an -OH group on carbon atom 11) is highly active in this respect.

EXPERIMENTS WITH RATS

In a group of 12 female albino rats with an average body weight of 160 g. surgical shock was produced by clamping the stomach, cæcum and small intestine, five times each, with a medium-size hæmostat. Of these animals 6 were each given 2 mg. of corticosterone in 5 c.cm. of distilled water in ten subcutaneous injections during the thirty hours after the operation, while the other 6 acted as controls and received the same amount of distilled water only. No food was given during the experiment since fasting is known to aggravate shock. Four hours after the operation the average body temperature of the control animals was 35° C. (range, 33·5–36° C.) while that of the treated animals was 36·2° C. (range, 36–36·5° C.). Throughout the thirty-hour observation period the temperature of the treated animals remained higher—that is, nearer the normal—than that of the controls. Thirty hours after the operation all animals were killed by bleeding from the carotid artery and jugular vein. The volume of the circulating blood was determined by the method used by Selye and Dosne (1940). In the treated group the average blood-volume was 3·3 c.cm. (range, 2·8–3·8 c.cm.) while in the controls it was 2·1 c.cm. (range, 1·8–2·2 c.cm.). In view of the fact that a group of 6 untreated control rats of the same size had an average blood-volume of 3·1 c.cm. (range, 3·0–3·2 c.cm.) it is evident that this dose of corticosterone was highly efficient in maintaining the blood-volume of traumatised rats at the normal level. It also prevented, to some extent, the decrease in body-temperature which is so characteristic of shock, and we concluded that, unlike desoxycorticosterone, corticosterone is highly active in combating traumatic shock.

In a second experiment 12 female albino rats with an average body-weight of 160 g. have been treated with five subcutaneous injections of 0·3 c.cm. of 4% formaldehyde during a thirty-hour fasting period. Such treatment results in profound shock due to the tissue damage caused by this protein precipitant. Since this shock is not complicated by hæmorrhage and can be dosed very accurately we are often using it for experiments of this type, especially when we wish to determine the whole blood chlorides, which show a characteristic decrease in shock unless the latter is complicated by severe hæmorrhage. As in the previous series, 6 of our animals received 2 mg. of corticosterone each. The other 6 acted as controls. In this experiment the fall in body temperature was not very evident until twenty-six

hours after the first formaldehyde injection, at which time it averaged 35° C. (range, 34–36° C.) in the controls and 36° C. (range, 35·5–37° C.) in the corticosterone-treated group. The fall in blood-volume was not as effectively counteracted as in the previous group since the average blood-volume of the controls was 1·1 c.cm. (range, 0·6–1·3 c.cm.) and that of the treated animals 1·3 c.cm. (range 1·0–1·8 c.cm.). The whole blood chlorides were determined in this experiment by the Van Slyke method and expressed as NaCl; they averaged 318 mg. per 100 c.cm. (range 310–328) in the controls and 348 mg. per 100 c.cm. (range 316–374) in the corticosterone-treated animals. Although one chloride value of the treated group (316) was within the range seen in the controls, the prevention of hypochloræmia is statistically highly significant as $P = 0{\cdot}01$ (Fisher 1936). It is evident that here again corticosterone proved effective in combating shock.

A second series of 12 rats in which surgical shock was produced in the manner described, 6 being treated with 2 mg. of corticosterone, yielded essentially similar results. Numerous experiments with Wilson's cortical extract indicated that this product is also effective in the treatment of traumatic shock, whether given subcutaneously or by mouth, though it is less active than corticosterone, irrespective of the dose given. Evidently further experiments will be necessary to determine the shock-combating activity of other cortical steroids and such experiments are now under way in this laboratory with dehydrocorticosterone and similar compounds. Doses of corticosterone higher than 2 mg. have not been tested as yet because it is difficult to obtain an adequate supply of this material. It should be emphasised, however, that 2 mg. were not sufficient to produce significant atrophy of the thymus in otherwise untreated rats in our thirty-hour tests while surgical or formaldehyde shock invariably resulted in definite atrophy within thirty hours. This indicates that higher doses would be required to equal or surpass the production of endogenous adrenal cortical hormone which occurs during the alarm reaction. It will be recalled that the thymus atrophy characteristic of this reaction is the result of increased secretion of cortical hormone (Selye 1936 b, Leblond and Segal 1938). This helps us to understand the inconclusive results of previous investigators who used commercial cortical extracts, of which enormous amounts would have to be given to introduce effective doses of active cortical steroids; even if such amounts are given the accompanying impurities, at least partly, overcompensate for the beneficial effects of these compounds.

OTHER SOURCES OF CORTICAL HORMONE

These considerations naturally lead us to the problem of finding means to secure sufficient amounts of corticosterone and possibly other pure active cortical steroids for therapeutic purposes. The amounts extractable from cattle adrenals—now the chief raw materials from which such compounds can be prepared—are minute, and we understand from the directors of the large drug houses that even if all the slaughter-house material of North and South America could be secured it would be insufficient to make such compounds available on a large scale, not to mention the fact that the cost of production would be almost prohibitive. For this reason other sources of supply had to be considered. As stated earlier in this paper, Selye and Schenker (1938) devised a particularly sensitive test for adrenal cortical hormones in order to detect the small amount in blood and urine. Using this method Weil and Browne (1939 a, b) were able to detect significant quantities of these hormones in the urine of certain patients though not in normal human urine. Stimulated by this discovery and knowing that the urinary excretion of other steroid hormones (e.g. œstrogens) shows decided species differences, we decided to investigate the excretion of cortical compounds in the large domestic animals, hoping that we might find sufficient quantities in the urine of some of these species to make extraction on a large scale worth while. With the coöperation of Dr. A. D. Odell of Charles E. Frosst and Co., we performed a large number of such assays and preliminary results are encouraging. Thus we found 11 of our rat units per litre in the urine of a one-year-old heifer and 20 units per litre in the urine of each of two cows during the early stages of pregnancy. The largest amount, 40 units per litre, was found in a pooled urine specimen from three mares belonging to a local riding school. This corresponds approximately to the amount extractable from 90 g. of cattle adrenals. It is possible that the muscular exercise performed by these animals helped to increase their production of adrenal cortical hormone, since it is known that muscular work is very active in eliciting the signs of the alarm reaction, including increased cortical activity. Further work designed to establish optimum conditions for the purification and large-scale production of cortical hormone from animal urine is now in progress and it is hoped that it will be possible to procure sufficient quantities in this manner to make such compounds available for the treatment of wound shock.

Another possible approach to the problem of the supply of cortical hormone would be the synthesis of corticosterone. This is unfortunately not yet possible but we have been promised samples of various corticosterone derivatives which were prepared synthetically by Prof. E. C. Kendall and his co-workers and we hope that we shall soon be able to report on their activity in the treatment of shock.

SUMMARY

Experiments in the rat indicate that pure corticosterone administered in aqueous solution is very effective in combating shock caused by surgical trauma and other means. Desoxycorticosterone is ineffective when tested under similar conditions. From this it appears that the hydroxyl group on carbon atom 11 is important for the shock-combating action of cortical steroids. The relative inefficiency of adrenal cortical extracts is probably due to the fact that the beneficial effects of the corticosterone—and possibly of other active steroids contained in them—are at least in part counterbalanced by harmful contaminating substances.

In view of the limited amount of adrenal glands which could be made available for the extraction of active steroids special emphasis is laid on preliminary experiments indicating the presence of relatively large quantities of adrenal cortical activity in the urine of large domestic animals.

The expenses of this investigation have been defrayed partly from the Cooper fund of McGill University and partly from a grant received from the Charles E. Frosst Company of Montreal. The authors are indebted to Prof. E. C. Kendall of the Mayo Clinic, and to Dr. David Klein of the Wilson Laboratories of Chicago, for the corticosterone used in these experiments.

REFERENCES

Fisher, R. A. (1936) Statistical Methods for Research Workers, Edinburgh, p. 128.
Leblond, C. P. and Segal, G. (1938) *C. R. Soc. Biol. Paris*, **129**, 838.
Pollak, H. (1940) *Lancet*, **1**, 574.
Selye, H. (1936 a) *Nature*, **138**, 32.
— (1936 b) *Brit. J. exp. Path.* **17**, 234.
— and Schenker, V. (1938) *Proc. Soc. exp. Biol., N.Y.* **39**, 518.
— and Dosne, C. (1940) *Amer. J. Physiol.* **128**, 729.
— — Bassett, L. and Whittaker, J. (1940) *Canad. med. Ass. J.*, July.
Varangot, J. (1940) *Pr. med.* **48**, 103.
Weil, P. and Browne, J. S. L. (1939 a) *Science*, **90**, 445.
— — (1939 b) *Proc. Canad. physiol. Soc.*
— Rose, B., Browne (1940) *Canad. med. Ass. J.* July.

"... I question the practicalities of the present pursuit of the degree of Doctor of Medicine which follows a course of education which is too long and too short; ... too long to permit the student to enter practical life in his best years and too short to feed him the special fundamental knowledge he should possess before he steps into public service. Eight years of required college work brings the average student to 26 or 27 years of age before he leaves school. Then he must have two years of hospital work to learn the practical application of some of the facts he has learned. He will then be 29 or 30 years old before he may be permitted to earn his living through professional work. ... Possibly he might be well prepared for his peculiar life by giving him six years of scientific and medical education, omitting all frills and specialty teaching and concentrating on practical general medicine, and minor surgery and traumatics and obstetrics, in order to give him the best preparation for the average care of the average patient."—Dr. Nathan V. Van Etten, in his presidential address to the American Medical Association, New York, June 11.

Reviews of Books

Diseases of the Gall-bladder and Bile-ducts

By WALTMAN WALTERS, M.S., F.A.C.S., head of section in division of surgery, Mayo Clinic; and ALBERT M. SNELL, M.D., F.A.C.P., head of section in division of medicine in the clinic. London: W. B. Saunders. Pp. 645. 50*s*.

IN the specialty of gall-bladder diseases the Mayo Clinic has always taken a lead, and Professor Walters and Professor Snell are here interpreting the half-century of the clinic's practical experience. It is largely this atmosphere of first-hand information which makes the book so convincing. They refer to a fairly large literature, but it is selected with great critical acumen; poor work and showy authors are ignored. Lately there has been a tendency to treat the gall-bladder as one thing, the bile-ducts as another and the liver as a third, but this book returns to the larger view, recognising the effects of biliary disease on the liver, and discussing individual organs as related not only to each other but to the patient as a whole. The chapters on medical and surgical treatment are admirable, and the details of diets and of preoperative and postoperative management are well described. A few improvements might still be made: It would be better when bilirubin concentrations are given in mg. per cent., to specify the method, because there is still some uncertainty about correspondences, and without details it is impossible to compare the results of different authors. The excellent pictures of gall-stones, although they include some rare and interesting types (the points about which, incidentally, are not brought out) do not include the ordinary single cholesterol stone. Several of the stones illustrated are classified, without analysis or microscopical examination, as "mainly calcium" because they are radio-opaque, although they are apparently of the common mixed type with a 3% calcium content. This is unworthy. Again, one expects in a new book a complete exposition of such recent concepts as "liver death" and "kidney death." The account given is not essentially better than that in Dr. Barlow's book of 1856, written some 70 years before these disorders were specifically recognised. Perhaps it is not fair to expect anything *better* than Barlow, but there ought to be something different. As a whole the book is excellent, and since biliary disease has now escaped from the province of simple surgery to that of functional pathology and medical treatment, it will be of interest to the physician and general practitioner as well as the surgeon.

Medicine of the Ear

Nelson Loose-leaf Series. Edited by E. P. FOWLER, Jr., M.D., Sc.D., assistant clinical professor of otolaryngology, College of Physicians and Surgeons, Columbia University. New York: Thomas Nelson. Pp. 590. £3 6*s*.

THIS is a companion volume to the one on Surgery of the Ear which appeared a year ago. In the introduction the editor explains that everything but surgical treatment is contained in the book. Emphasis is laid upon ætiology, anatomy, physiology and pathology. Each section is written by a different author, but the quality is excellent throughout and the balance is well maintained without much overlapping. The two opening chapters on the physiology of hearing and of the labyrinth by Hallowell Davis and John Tait set the standard; both writers are in the forefront of modern research and discovery in these subjects and write clearly and with authority. In a valuable chapter on the eustachian tube the proper importance is given to this vital connecting pathway between the ear and the nose and pharynx. Hearing tests occupy a chapter; tests of labyrinth function, pathological changes in the labyrinth capsule with special reference to otosclerosis, and congenital malformations, including those of the inner ear, are described. An article on diseases of the vestibular system is rather obscurely written, making scarcely any reference to Furstenberg's work on salt-free diets, and none to recent pathological findings in certain cases of Menière's disease; the complementary chapter on diseases of the neural mechanism of hearing is excellent. In the chapter on otogenic meningitis the right emphasis is laid on the administration of sulphanilamide in full doses from the outset. There are shorter chapters on allergic diseases, deaf-mutism and the deaf-blind. The format and illustrations are praiseworthy. The two volumes together constitute the answer to an otologist's prayer.

Human Helminthology

A Manual for Physicians, Sanitarians and Medical Zoologists. (2nd ed.) By ERNEST CARROLL FAUST. London: Henry Kimpton. Pp. 780. 40*s*.

ON the zoological side this book treats its subject lucidly in print and in figures, while life-histories of the most important parasites are illustrated in clear schematic form. Where he touches medicine more closely, however, Professor Faust is not so sound. For example, he gives this explanation for the greater anthelminthic efficacy against hookworms of carbon tetrachloride compared with oil of chenopodium. Drugs have access to hookworm tissues either through the thick surface cuticle or through the thin intestinal lining; but the hookworm's mouth is filled by the indrawn mucosa, and by that route only can something that has first been absorbed by the host reach and poison the worm. The inference is that the oil is less well absorbed by the host than is carbon tetrachloride; but after an anthelminthic dose of the oil Caius and Mhaskar [1] found that the fæces contained none of it, while for 24 hours its constituents, combined with glyconuric acid, were excreted in the urine; indeed it was on account of the oil's relatively rapid absorption that they considered the need of a purge. This experience, not a solitary one, shows that an anthelminthic drug may be altered by the host, so that what kills worms of a particular species may well be a host-made poison derived from it. It follows that in-vitro tests that bring a drug into contact with a worm need be no measure of that drug's anthelminthic value after the host has intervened. The same disregard of the effects of a host's activity lies in Faust's statement that, because *Microfilaria bancrofti* survives in vitro for more than 24 hours, and when injected by Knott into uninfected volunteers (who were however residing in a highly endemic area) lived in the blood for more than two weeks, therefore there is no truth in Lane's suggestion that the life-span of microfilariæ in the human body is less than 24 hours and that their death is the cause of the fall of the microfilarial blood tide. In fact it becomes steadily clearer that the host's reticulo-endothelial system actively intervenes in the destruction of microfilariæ, and that it may be blocked is now a commonplace in medicine. In another edition the collaboration of a medical man solely responsible for medical matters would add conspicuously to the value of a book that has many notable features.

Special Library Methods

An Introduction to Special Librarianship. By JOHN L. THORNTON, A.L.A., librarian, St. Bartholomew's Hospital medical college. London: Grafton and Co. Pp. 158. 10*s*. 6*d*.

THE term special libraries is generally understood to mean those which deal with a more or less well-defined field of knowledge, but Mr. Thornton's definition is much wider, being based on function rather than stock. For him special libraries include all other than those devoted to the use of the general public, and he therefore considers in this book all except public municipal and county libraries. As its subtitle suggests, the book is addressed more to students of librarianship than to users of libraries, but some acquaintance with library methods is always an advantage to the latter. Whether the cursory descriptions given here will be of much help seems doubtful, but Mr. Thornton's exposure of some of the shortcomings of medical libraries is well deserved and would provide salutary reading for library committees and particularly for honorary librarians of medical institutions. A valuable feature in the book is the series of excellent bibliographies at the end of each chapter. The index is also well done; it includes not only all topics, persons and institutions mentioned in the text, but also the names of all authors cited in the bibliographies, an unusual but commendable practice.

1. Caius, J. F. and Mhaskar, K. S., *Ind. J. med. Res.* 1920, 7, 570.

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THE LANCET

LONDON: SATURDAY, JULY 20, 1940

HÆMOLYTIC ANÆMIAS

In spite of the progress in hæmatology the classification of the primary hæmolytic anæmias remains unsatisfactory. There is the well-known congenital group whose most notable feature is increased fragility of the red cells in saline solutions, and there are the acquired cases whose red cells are not as a rule exceptionally fragile. This rough clinical division is borne out by the experience that the first kind are mostly seen in young people in whom splenectomy gives extremely good results, while the second group are mainly found in older adults and their recovery after splenectomy is often incomplete. In both groups densely-staining small red cells known as "spherocytes" have been described. NAEGELI suggested that some change, possibly inherited, in the formation of red cells in the bone-marrow led to the formation of spherocytes, and it was shown by many workers that such cells would be abnormally fragile in the expected manner. This school therefore held that the fundamental error lay in the bone-marrow which was producing spheroidal red cells instead of biconcave discs. Since these spherocytes were more fragile they were more rapidly destroyed than normal cells, particularly in the spleen; hence the anæmia. Splenectomy removed the largest area of red-cell-destroying tissue, and consequently the patient was able to carry on even though the red cells remained abnormal. Although this theory accounted for the congenital group very well, it was difficult to see how the acquired cases could be fitted in. The specificity of spherocytosis was soon challenged and it was said that spherocytosis was produced by the action of hæmolytic agents on the circulating red cells and had nothing to do with bone-marrow. Spherocytosis was found in blood diseases other than congenital hæmolytic anæmia and it could be produced experimentally by the action of hæmolytic agents. DAMESHEK and SCHWARZ [1] produced hæmolytic sera in rabbits by the injection of guineapig cells. When these sera were injected intramuscularly or intraperitoneally into guineapigs an anæmia was produced which showed all the features of clinical hæmolytic anæmias including spherocytosis and increased fragility of the red cells. By varying the dose and the titre of the hæmolytic sera they were able to produce a whole range of syndromes varying from a fulminating picture of hæmoglobinæmia, hæmoglobinuria and rapid death to subacute pictures resembling the more usual human syndromes. Dameshek and Schwarz suggest that the acute hæmolytic anæmias—in which they include the more acute phases of congenital and acquired hæmolytic anæmia or icterus—are all due, in part at least, to the action of hæmolysins; that the clinical variations are due to variations in the dose of hæmolysin, and that the changes in the blood and blood-forming tissues are due to the combined effects of excessive destruction of red cells, efforts at regeneration by the marrow, and the effects of hæmolysins on the circulating red cells. They note [2] that there is much in the work of the original French investigators to support this view.

At first sight it seems easy to verify such a theory. Is it possible to demonstrate hæmolysins in the blood of these patients? The answer is, only occasionally. Hæmolysins have most often been reported in the severe cases with nocturnal hæmoglobinuria but they have not always been isolated even in these cases. In one clinic attempts have been made to find hæmolysins in the blood of every patient with hæmolytic anæmia for the last three years, but they have only been found in one patient, and she had nocturnal hæmoglobinuria. But Dameshek and Schwarz point out that failure to find circulating hæmolysins does not rule out their presence since the amounts required for in-vitro demonstration are large. Every case with spherocytosis shows, they say, indirect evidence of the action of a hæmolysin, and the fact that hæmolysins are most easily demonstrated in the most severe cases supports the view that severity is proportionate to the amount of circulating hæmolysin. Why splenectomy should have such a good effect is not clear, and Dameshek and Schwarz admit that it is as yet uncertain how far the spleen plays an active or a passive rôle.

The "inborn abnormality" theory has clearly to be revised, but the hæmolysin theory cannot be said to be firmly established. Consequently treatment remains empirical, and Dameshek and Schwarz point out that variation in severity goes hand in hand with variation in response to treatment. Some patients recover spontaneously; in some a single transfusion is enough; others require repeated transfusions; and a few do not respond to blood-transfusion at all. In both the latter groups splenectomy is the only successful method of treatment. If the patient's condition can be improved by transfusion of a reasonable amount of blood—say 1½–2 litres—splenectomy can be deferred until the maximum improvement is obtained. But if the response to transfusion is unsatisfactory splenectomy should be undertaken as an emergency measure. Postoperative transfusion can be held in reserve but is often unnecessary, since, as DOAN and his co-workers [3] showed, improvement begins almost as soon as the spleen is removed. Apart from trauma splenectomy is not usually thought of as an emergency operation, but in these severe cases of hæmolytic anæmia, as in severe cases of thrombocytopenic purpura, the hesitating surgeon must be persuaded to carry on, even though the patient's blood-count is much lower than he would like to see it, since the operation is the patient's last hope of even partial recovery.

DIET IN DIABETES

UNTIL insulin became available for the treatment of diabetes mellitus the main therapeutic principle was starvation, either complete or in the partial form of undernutrition. Credit for gaining acceptance for the principle must be given largely to F. M. ALLEN, and there is no doubt that in many cases, especially in obese elderly diabetics, its application gave very satisfactory results. In young diabetics its effect was not so satisfactory, although it may

1. Dameshek, W., Schwarz, S. O. *Amer. J. med. Sci.* 1938, **196**, 769.

2. Dameshek and Schwarz *Medicine*, May 1940, p. 231.

3. Curtis, G. M., Doan, C. A. and Wiseman, B. K. *Ann. Surg.* 1936, **104**, 892.

sometimes have staved off the fatal issue. With the introduction of insulin the use of undernutrition as a therapeutic measure diminished, and its value in certain cases tended to be forgotten. This swing of medical practice and opinion can be ascribed to two factors: first, the unequivocal success of insulin therapy in keeping young diabetics alive; and second, the widespread acceptance of the doctrine that diabetes mellitus was a single disease entity resulting, in all cases, from one and the same pathological mechanism. If it had been obvious from the beginning that distinct clinical types of diabetes could be differentiated—on the grounds that insulin was efficacious in some and powerless in others—the unitarian conception of the pathology might have been shaken, but a clear differentiation of this nature was not made and insulin, which gave such undoubtedly good results in the severest cases, was given to all. The varying efficiency of insulin was soon noted by clinicians, and by 1933 FALTA [1] and his school had produced evidence that insulin-sensitive and insulin-resistant cases could be differentiated. In England HIMSWORTH arrived at the same conclusion on different grounds, and he and KERR [2] have lately demonstrated that the effect of diet varies in the two types of case. They claim that in the insulin-sensitive cases a change from a low to a high carbohydrate diet necessitates no increase in insulin dosage, whereas in insulin-resistant cases the same dietary change increases the insulin requirements. Meanwhile, other clinical workers have been recording the effect on sugar tolerance of undernutrition sufficient to reduce weight in obese diabetics, and have found that it may improve the tolerance to such an extent that the patient no longer appears to have diabetes.[3 4]

The main characteristic of diets producing undernutrition is their low carbohydrate content, and BEST, HAIST and RIDOUT [5] have now suggested a possible explanation of their beneficial effects. They have shown that in rats the insulin contents of the pancreas is decreased by fasting, by giving diets low in carbohydrate and high in fat, and by the injection of insulin; and they suggest that such methods rest the islets of Langerhans.[6] This implies that carbohydrate feeding may overstrain the islets, and recalls ALLEN'S conclusion that a high blood-sugar produced by taking a high-carbohydrate diet might cause degeneration of the islet cells. HAIST and BEST cite two further pieces of evidence: first, that when the insulin content of the pancreas has been decreased by fasting carbohydrate feeding rapidly restores it to normal; secondly, that removal of part of the pancreas in dogs produces no change in the pancreatic insulin content unless enough of the gland has been removed to cause diabetes, in which case the insulin content falls considerably. This work serves to draw our attention again to the rôle of diet in the treatment of diabetes.

There is now a good deal of evidence that two types of diabetes mellitus exist and that these two types react differently to dietary change. The young, thin patient with severe diabetes seems to be influenced unfavourably by a low carbohydrate diet or starvation; such measures do not reduce his insulin requirements and the best results in these cases are achieved with a liberal carbohydrate diet. The obese diabetic, on the other hand, seems clinically to be benefited by a low carbohydrate diet, with or without periodic starvation, and this treatment often reduces his insulin requirements. Probably if these dietary measures were widely applied to the obese type of case a large number of the elderly diabetics now taking insulin could be satisfactorily controlled without it.

1. Falta, W. Die Zuckerkrankheit, Berlin, 1936.
2. Himsworth, H. P. and Kerr, R. B. *Clin. Sci.* 1939, **4**, 119.
3. Embleton, D. *Proc. R. Soc. Med.* 1938, **31**, 1183.
4. Newburgh, L. H., Conn, J. W., Johnston, M. W. and Conn, E. S. *Trans. Ass. Amer. Phys.* 1938, **53**, 245.
5. Best, C. H., Haist, R. E., Ridout, J. H. *J. Physiol.* 1939, **97**, 107.
6. *Science*, 1940, **91**, 410.

SILAGE

IF there is enough rain within the next few weeks to make the grass grow we shall have thousands of tons of silage before next winter; farmers who have never made silage before are ready to start now. Why this sudden interest? Silage is nothing new, for the process, which may be described as the pickling or preserving in a succulent condition of various farm crops, was introduced into this country fifty years ago. But the type of crop which could then be successfully used was limited. It was also considered necessary to employ large concrete containers called tower silos which few farmers could afford, and the resulting silage varied widely in feeding value according to the farmers' knowledge of the process. Today the limitations have largely been overcome, and owing to the difficulty of importing feeding-stuffs every farmer is trying to ensure a supply from his own farm. The Ministry of Agriculture is arranging demonstrations to popularise the process, and apart from green crops grown specifically for silage they are urging that all surplus grass and other crops should be ensiled against winter scarcity.

The principles of silage-making are to cut the crop in a green state and then to handle it so as to curtail leaf respiration and avoid the production of temperatures over 120° F. which would lead to the loss of nutrient material. This is achieved by packing the greenstuff tightly in a closed container or silo which rations the supply of air. As respiration proceeds and the mass warms up, enzymes break down both proteins and carbohydrates. Ultimately, on the death of the plant cells, micro-organisms become active and various organic acids are formed which act as preservatives. The most important of these acids is lactic acid, formed from the sugar of the crop. Unless the crop contains enough starch or sugar undesirable acids such as butyric acid may be formed, giving the silage an evil smell. For this reason until recently it was not thought possible to ensile crops, such as young leafy grass, which were rich in protein but poor in starch or sugar. This difficulty has been overcome by the simple expedient of adding sugar in the form of molasses—whey was first tried—and in this way the farmer can make silage from protein-rich material and find himself largely independent of imported cake. Yet another incentive to silage-making is that it is no longer necessary to incur high capital expenditure in building a large fixed tower silo. Cheap portable silos are now available in sections or wood or wire mesh lined with special paper. Again, silage can be made at odd times when the weather is unsuitable for other farm operations.

Well-made silage is a succulent yellowish material with a slightly acid taste and a faint but pleasant smell. Its food value depends on how and from what it is made. Ordinary silage, on a dry-matter basis, has a food value equal to hay, but molassed silage made from young leafy grass may contain twice the protein of hay and rival a cake or other concentrated food. Silage and hay are not in fact interchangeable in stock dietetics, but are rather complementary, the silage adding succulency to the animals' diet. Normally silage contains more carotene than hay, and in late January, when milk and butter lose their colour and with it much of their vitamin-A content, the feeding of good silage will ensure that the consumer gets a milk rich in vitamin at a time when other protective foods are scarce. Moreover, though Hitler may try to fire our haystacks he will find it difficult to destroy silage with his incendiary bombs.

Annotations

FITNESS FOR SERVICE

Boys mostly leave the elementary schools in good condition. Physical training under the Board of Education is an everyday part of their lives, well organised and well taught. After the age of fourteen they have to fend for themselves and get what exercise they can. Many of them, lacking the stimulus and competition of companions, become physically lazy, and as Lord Dawson has pointed out (*Times*, July 8), "the promise of childhood too often fades away into weediness and futility." It seems deplorable that we need a war to drive this lesson home—that we, who pride ourselves on human dealing, should never have ensured for our younger citizens the chance to achieve full growth. In a leading article the *Times* (July 4) noted that the Fitness for Service scheme has evoked a comparatively poor response. The Central Council for Recreative Physical Training and the Football Association have worked hard to provide quarters and instructors, but attendances have not been large, and the mixed bag of those attending—ranging from tired munition workers to energetic youths of seventeen—has complicated the task of those in charge. Lord Dawson suggests that the difficulties can be overcome by dividing those to be trained into groups. Boys between 15 and 18 should receive compulsory physical training under the joint direction of the Board of Education and the War Office, the board being largely responsible for the younger and the War Office for the older boys. The War Office should also have the task of providing trained instructors. Munition workers, he thinks, should be spared violent physical exertion at the end of a long day, and should rather be restored with music, dancing and the drama. Disabled or wounded men form a third group requiring special training under medical supervision. This aspect of the work might well be left to the direction of the doctors abetted by the Chartered Society of Massage and Medical Gymnastics. Rehabilitation is a complex process which can hardly be fitted into a general fitness campaign. If a system of widespread physical training for young people can be arranged now perhaps it is not too much to hope that it may be maintained when peace comes. Fitness for service is an ideal worth keeping before us in peace as well as war.

ONE-SHOT DIPHTHERIA IMMUNISATION

Despite its obvious administrative advantages the practice of immunising against diphtheria by a single injection of alum-precipitated toxoid has not found general favour in this country. Clinical experience and experimental work both support the vital part played by a second injection in producing the highest level of lasting immunity. Nevertheless the one-shot method has not been without success, particularly where there is a reasonable degree of basal immunity, a fact which led Saunders[1] to suggest that it would be the best way of affording rapid and widespread protection in urgent circumstances. A somewhat similar view has recently been expressed by a committee of the American Public Health Association,[2] who, although preferring the two-dose method, yet consider that, in the face of practical difficulties, it is better to give a single injection of A.P.T. to a large number of children than two doses to half as many children. Clearly if all susceptible children were so immunised it would only require a 70% Schick conversion-rate to deal effectively with a particular epidemic of diphtheria. Whether an immunity so induced would be lasting is, of course, another matter. On another page Dr. Faragó also demonstrates the superiority of two injections in promoting maximum immunity, but he has been able to test over 20,000 children who for various reasons received only a single injection of A.P.T. 1–5 years previously. Even allowing that the 86·5% Schick-negative rate he obtained was artificially raised by the inclusion of natural immunes (no preliminary Schick testing was done), it remains an impressive figure when applied to the numbers involved. Doubtless it has contributed in no small measure to the decreased incidence and death-rate for diphtheria in Hungary in recent years. In this success Faragó takes full account of the part played by latent infection and is prepared to revise his opinion as to the sufficiency of one-shot immunisation if basal immunity is found to decline in the future. It is to be deplored that we in this country can quote no comparable experience. Certainly nothing but large-scale experiments under varying conditions can decide on the efficiency or otherwise of any particular method of mass immunisation. For the individual it appears to be our duty to offer the highest level of protection obtainable and this necessarily involves two injections of A.P.T. at suitable intervals.

JAM WHEN SUGAR IS SCARCE

The sugar in jam performs four functions: it sweetens it, preserves it, helps it to set and adds to its bulk. No substitute can do all this, and if we are to make jam without sugar we must add more than one substance to take its place. Saccharin will do the sweetening, though it does not taste quite the same as sugar, and is sufficiently heat-stable; roughly 25–30 grains is equivalent to a pound of sugar. Preservation can be attained either by asepsis or antisepsis. In the aseptic technique, which is employed in bottling fruit, the pots are sterilised by heat before use and melted paraffin wax is poured on the top of the jam as soon as it is put into them; alternatively air-tight screw-capped jars can be employed. With this technique the jam will not keep well when it is unsealed, and small pots should be used. Antisepsis is complicated by the law, which prohibits the addition of any preservative to jam except sulphur dioxide in a strength of 40 parts per million. This does not affect the flavour of the jam but is also unlikely to affect the growth of moulds and bacteria. If the jam is not going to be sold we may use more powerful preservatives such as benzoic or salicylic acid, and these are perfectly safe if carefully weighed. Gelatin will make the jam set and will also add to its bulk, though unfortunately it encourages the growth of moulds. The pectin preparations which are sold to help soft-fruit jam to set do not work without sugar.

The Good Housekeeping Institute have lately carried out some experiments for The Lancet based on these

1. Saunders, J. C. *Lancet*, 1937, **1**, 1064, and 1940, **1**, 390.
2. Report of the subcommittee on evaluation of administrative practices of the American Public Health Association. *Health News*, April 8, 1940.

considerations. In the first experiment jam was made with 8 oz. of blackcurrants, 7·5 grains of saccharin and ½ oz. of powdered gelatin. This set well and looked like jam, but it was unpalatable; the bitter-sweet taste of the saccharin was too predominant. Next, with the same quantity of fruit and gelatin, 2 oz. of sugar and only gr. 3 of saccharin was used. The small amount of sugar greatly improved the jam, and this sample set well and tasted nice. A similar jam was made with the addition of 2 drachms of 0·06% sulphurous acid, and this did not affect either the setting or flavour. Finally two separate pounds of raspberries were made into jam, the first according to a familiar recipe, using 1 lb. of sugar, and the second according to the saccharin and sugar recipe. It was found that with the first the resulting jam weighed 1 lb. 10 oz., and with the second 1 lb. 1 oz. The prescription for the saccharin-sugar jam is as follows:

Ingredients:

1 lb. soft fruit.
¼ pint cold water.
4 oz. sugar.
½ oz. powdered gelatin.
15 saccharin tablets (full strength, gr. 0·3).
8 tablespoonfuls boiling water.
Paraffin wax.

Method: Sterilise the pots either by boiling them or heating them in a moderate oven for 30 minutes. Do not remove them from the heat until they are wanted for use. Melt the paraffin wax. Place the prepared fruit in a pan with cold water and bring to the boil. Stew until thoroughly cooked (about 15 mins.). Add the sugar and boil vigorously for 7–10 mins. Crush the saccharin tablets and dissolve them in 4 tablespoonfuls of boiling water; add to the fruit. Dissolve the gelatin in 4 tablespoonfuls boiling water and add it also to the fruit. Stir well. Remove jam from the heat and pour it quickly into the pots, covering it immediately with the melted wax.

If a preservative is used it must be stirred in just before the jam is removed from the fire. For sulphur dioxide the dose is 1 tablespoonful of 0·06% sulphurous acid per 1 lb. of fruit. The dose of benzoic acid is gr. 6 and of salicylic acid gr. 4 per pound of fruit. If either of the latter is added there should be no need to sterilise the pots or seal them with wax, but it would be unwise to dispense with these precautions until the antiseptic method has had an extended trial. The use of both asepsis and antisepsis may seem like wearing braces and a belt, but the preservative will in fact both make up for errors in technique and help the jam to keep after the pot is open.

VIRUS UNDER THE FLUORESCENCE MICROSCOPE

A YEAR or two back Hagemann published the details of a new technique for the microscopic study of viruses. This depends on the fact that virus particles treated with certain dyes such as primuline fluoresce when illuminated with ultraviolet light; a special microscope for the observation of this phenomenon has been produced by Zeiss. Hagemann and Gerlach on the continent and Himmelweiss in this country have demonstrated the utility of this method. Recently Levaditi and others,[1] have made a study of vaccinia virus by means of the fluorescence microscope. They first investigated the relative value of different fluorochromes—primuline, thioflavine S, auramine O, rhodomine B, trypaflavine, uramine A and eosin G—and found thioflavine S to be the best. The technique for the demonstration of viruses in smears by this method is simple and consists in the application of a 0·2% aqueous solution of the dye to air-dried smears for five minutes. Further, the addition of a small amount of the dye to a virus suspension stains the virus and this has been used in devising a method for counting viruses. Stained suspensions mounted in the special chamber made by Zeiss for use with the cardioid condenser were counted with the fluorescence microscope using a ruled ocular. No doubt this new technique is a valuable addition to our methods of virus study; it has given us a simple method of demonstrating viruses and facilitates their direct enumeration. Parker and Rivers[2] had, however, already devised a method for counting viruses which seemed quite satisfactory. And the facts which have emerged from the study of vaccinia virus by means of this new technique are those with which we are already familiar. The French workers conclude that the elementary body is the infective agent and that the Guarnieri bodies are virus colonies. Some, no doubt, will still dispute this latter statement; the majority who have consistently adhered to this view will be glad of the added confirmation. The infectivity of suspensions of vaccinia was found to vary directly with the number of elementary bodies, but, unlike Parker and Rivers who concluded that one vaccinia particle could initiate infections, Levaditi and his colleagues found that the ratio between the number of elementary bodies and the least infecting dose was never as low as unity. This ratio, as one would expect, was found to vary with the source of the virus suspension and the species of animals vaccinated.

1. Levaditi, C., Reinie, L., Stamatin, L., Le-Van-Sen and Berguignon, R. *Ann. Inst. Past.* 1940, **64**, 359.

PROGNOSIS IN SCHIZOPHRENIA

PROGNOSIS in psychiatry has such far-reaching social and domestic implications that a rule of thumb would be even more acceptable than in general medicine or surgery. Actually it is nowhere more difficult, and in acute schizophrenia perhaps most difficult of all. Certain facts are well known: it is always a most serious disease, complete recovery is rare and material improvement becomes less likely the longer the illness goes on. The recovered schizophrenic is regarded with curiosity even by his doctors; it is awe-inspiring as well as heartening to watch a patient, but recently overwhelmed by timeless, bizarre and inhuman fantasies, resume the daily round. A detailed survey of the vast literature on prognosis in this disease has been made by Blair.[3] The difficulties of such a task lie less in the different criteria of diagnosis used by different authors than in the lack of standardisation of results. The adoption of a generally acceptable scheme for following up schizophrenic patients is an urgent necessity. At present every writer on schizophrenia has to explain what he means by "social recovery" or "much improved." If he does the reader is grateful but needlessly burdened; if he does not the work is robbed of much of its value. The scheme quoted by Blair from Muller has many virtues. This divides results into seven classes. (1) Total recovery: freedom from symptoms and signs, return to previous social environment and to previous or an equivalent occupation. (2) Social recovery: return to previous social environment and to previous or equivalent occupation, in spite of the persistence of minor signs and symptoms, such as irritability, shyness, or shallowness of affective response. (3) Social defect: minor symptoms are again present and the patient is incapable of carrying out work of his previous level and fails to maintain himself in his previous degree of social adaptation. (4) Family invalid: the patient shows well-marked symptoms and is incapable of carrying out any useful occupation, but is manageable at home. (5) Hospital invalid: he remains an inmate of a mental hospital, possibly having relapsed after a temporary recovery. (6) Dead. (7) Untraced. Uniformity is the essential requirement, and certain standard intervals should be chosen for the follow-up—for example, one, three and five years after admission to hospital.

Of the 3192 reported cases reviewed by Blair 40% improved, and 60% showed no improvement or died; recoveries averaged 20% of all admissions. As regards the prognostic significance of the different forms of the disease, of hereditary and constitutional factors and

2. Parker, R. F. and Rivers, T. M. *J. exp. Med.* 1936, **64**, 439.
3. Blair, D. *J. ment. Sci.* May, 1940, p. 378.

mode of onset, his analysis confirms the standard British teachings of Mapother and Lewis.[4] From a follow-up of 120 cases Blair considered that in all but a very few the outcome might have been predicted correctly by the application of the criteria derived from his survey of the literature. His series, however, was prognostically rather an unfavourable one in that only 19% of the cases improved. The introduction of shock treatment brought further difficulties in assessing results, and made it even more desirable to standardise the criteria of improvement. Sponsors of the new methods were probably lenient towards minor residual symptoms, and had also to guard against attributing recovery in atypical but benign affective disorders to the treatments, as well as to weigh the chance in the schizophrenics treated that a remission might have occurred with ordinary hospital methods. Such figures as 70% of complete remissions in acute and subacute cases were not uncommonly quoted in the earlier days of convulsion therapy. In a further series of 120 cases treated by Blair with Cardiazol, 7 of the 11 patients who showed improvement had been ill for less than six months. Atkin,[5] on the other hand, found a proportion of chronic hospital inmates improved as regards manageability and ease of nursing after a series of shocks. Bain [6] does not recognise the change from impulsive and difficult conduct to inert docility as necessarily an advantage from the patient's point of view. He reports no improvement with cardiazol in 9 cases in which the duration of illness varied from one to eleven years, whereas of 7 control cases treated by ordinary hospital methods 3 (all of less than two years' duration) improved. Clearly the status of shock therapy, whether by insulin or cardiazol, is not yet finally established. Nothing has been published in the past eighteen months to displace the balanced statement of Stalker, Millar and Jacobs [7] that each should be used in special types of case, and that "they afford the best chance of recovery to a potentially recoverable patient whose illness is dragging on. They reduce the average duration of hospital treatment."

TRAINING FOR WAR AND FOR PEACE

SOMEONE has pointed out that if a man slips on a piece of orange peel and sits down we can all enjoy the fun; but that if he slips on a piece of orange peel and breaks his neck he spoils the joke by carrying it too far. It is much the same with edifying maxims. "Every man can serve the state" is an old and by no means an ignoble one; but if, as a correspondent suggests (p. 84), a Hitler comes along and uses the state criminals to suppress minorities we may recognise him as a practical psychologist, but note that he has destroyed the value of his own doctrine by carrying it to its logical conclusion. Whether Hitler has actually saddled himself with such an embarrassing company of blackguards seems to be beside the point—he is such a pragmatist that at times anything seems possible. But at all events he has taught us, in the last ten years, one supreme lesson: that education is a positive, not a neutral thing. With the growth of modern psychological thought criminals have come to seem less like villains and more like victims of defective education or problems for the consulting-room; this, in itself, is an advance. But while we have recognised this negative aspect of training—this outcome of insufficient or defective training—we have not been equally clear about the value of positive training. With his extraordinary gift for utilising psychology for his own ends, Hitler has taken the children of his race in hand and given them systematic education along one line. He has produced a positive result. They believe they belong to a race destined to be supreme, and that other races must be subjected if necessary by force and cruelty. In ten years he has managed to establish that belief in thousands of young people who have in their compositions the native kindliness and sympathy of youth as well as its ruthlessness. Education in this country has been tentative in recent years; we have feared so much to damage the growing child that we have interfered with him perhaps too little, and the philosophy of the young today seems to be as formless as the curriculum which bred them. Ten years' intensive instruction in citizenship, charity and international thinking might breed a race as capable of managing peace as the Hitler youth were of making war.

4. Mapother, E. and Lewis, A. Price's Textbook of the Practice of Medicine. 1937.
5. Atkin, I. *Lancet*, 1939, **1**, 435.
6. Bain, A. J. *J. ment. Sci.*, May, 1940, p. 502.
7. Stalker, H., Millar, W. M. and Jacobs, J. M. *Lancet*, 1939, **1**, 437.

EXAMINATION OF CHLORINATED WATER

THE examination of water begins with the taking of a sample. This must as far as possible be a representative one and must be examined in the same condition as when it was taken. It has long been a canon of the chemical examination of water that analysis should be started as soon after sampling as will secure this end, since the organic matter in water can be appreciably altered during storage, especially in the presence of oxygen either already dissolved in the water or taken up from the small space in the neck of the sample bottle. The vital agents which cause or assist these changes may themselves die or multiply, according to the conditions of storage, and after a time the biological-chemical picture will be significantly altered, leading to misleading conclusions. When a chemical agent such as chlorine has been used for sterilisation an unjustifiable feeling of safety may be engendered if a sample containing free chlorine is taken and the reagent is allowed to go on acting during the interval between sampling and bacteriological examination. It is unsafe to presume that the excess chlorine in a small sample contained in clean glass acts in the same way as it does in a reservoir or main, as E. F. W. Mackenzie points out in *Public Health* for July. Free chlorine can satisfactorily be removed from the sample by treating it with thiosulphate.

EATING AND OUTPUT

WAR effort needs an increased consumption of food, just as climbing hills in a car needs an increased consumption of petrol. Men working overtime in factories ought to be getting an augmented diet to balance their increased output of work. This point is well taken by Mr. Geoffrey Bourne, D.Sc., in his new book.[1] He falls foul of a sentence from a leading article in the *Economist* (Nov. 11, 1939) which stated: "The official attitude on food rationing seems to show no conception of the fact that we cannot exert our maximum effort without deliberately restricting the consumption of food, whether the food is physically available or not." Possibly the editor of the *Economist* was thinking of the vast numbers of sedentary workers in the country, many of whom might even profit by a reducing diet; it is unlikely that he was proposing that those labouring manually to increase our arms supply should be asked to limit their intake. Dr. Bourne considers that a restriction of that kind would be disastrous. A man doing four hours' overtime, he says, needs an addition of 540 calories to his ordinary diet. "If such a man is already living at the limit of his income, where are the extra calories to come from? If he cannot buy the necessary food he can only obtain them by burning up his own tissues, and this means, in effect, that he must inevitably break down." He suggests that the danger can be avoided if men working in industry are supplied daily with a glass of milk, two or three slices of wholemeal bread and butter and cheese, together with some fruit, if possible. The cost of this, he thinks, might well be borne by the firm and under the excess profits tax would cost them nothing; but failing that the

1. Nutrition and the War. Cambridge University Press. Pp. 126. 3*s*. 6*d*.

Government might be responsible for what is after all a small and economical piece of preventive medicine. Once the industrial programme is fully organised the number of men working overtime will no doubt be greatly reduced; but probably there will be a small number of skilled workers who will have to give up their leisure for many months to come. It would be a wise measure to cherish these invaluable servants, and if a glass of milk and a piece of cheese will do it the rest of us would probably be ready to put our maximum effort into tightening our belts should the occasion arise.

INDUSTRIAL TUBERCULOSIS

WE have passed the summer solstice and evenings are beginning to draw in. The cosiness may be agreeable enough in the domestic circle but will make ventilation more difficult in factory and workshop. There is now a considerable movement of women into industry and recent weeks have seen an intensification of working conditions which despite the vigilance of advisory committees will put a strain on the healthiest system and increase immeasurably the prospect of breakdown in those with early or latent phthisis. Dr. Stocks has already noted some increase in the death-rate from tubercle in the civil population of London during the early months of the year. In the last war there was not only a costly aftermath of service invaliding from phthisis but an increased morbidity among the civil population which was afterwards traced to industrial conditions, particularly for women. Among the 2 million men now registered in age-groups it has been reasonably estimated that 1%, or a total of 20,000, should be rejected as suffering from active or latent pulmonary tubercle.[1] In a group of 29 cases sent home from the western front last winter Dr. Morland assured himself that 21 could have been eliminated had their chests been examined by X rays. Most of them dropped out from fatigue or incapacity to keep up on route marches. A similar group in a factory or workshop might go on longer before their disability became manifest, running meanwhile the double risk of progressive disease for themselves and some infection of their working comrades. Nothing is more certain than that mass radiography can sift out an overwhelming proportion of these undesirable recruits to the Services or industrial life. Unfortunately the Horder Committee has decided that it is impracticable to apply the test in the Army but that is no reason why it should not be applied to the industrial community where the risk of infection is probably greater. Responsibility lies heavy on those who are in a position to implement this knowledge and are aware of the cumulative force of the evidence. We need only recall some of the many recent mass investigations of the apparently healthy, such as university students in Sweden,[2] medical students in London,[3] employees of an insurance company in New York,[4] and a variety of population groups in New York City.[5] In some of these investigations paper films were used, in others a simple screening; fluoroscopy may be accurate, inexpensive and expeditious—Dr. Ellman in our correspondence columns tells us this is claimed for it in America—but for the reason that it is uncontrolled it puts a severe burden on the most experienced observers and should only be regarded as a makeshift. The method of choice is miniature radiography which commends itself irresistibly to all who have tried it, the most recent contributors being Shanks,[6] Stanford,[7] Bentley and Leitner[8] on its technical basis; Thomas[9] and Cranch[10] on the results of its application. It is perhaps the most notable example in recent times of coöperation between physics and physic.

1. Morland, A. J. *Brit. med. J.* June 15, 1940, p. 991.
2. Hedvall, E. *Amer. Rev. Tubere.* 1940, **41**, 770.
3. D'Arcy Hart, P., Hilton, G., Morland, A. *Lancet*, 1940, **1**, 263.
4. Fellows, H. H. *J. industr. Hyg.* 1940, **22**, 157.
5. Edwards, H. P. *Amer. Rev. Tubere.* 1940, **41**, suppl.
6. Shanks, S. C. *Tubercle, Lond.* 1940, **21**, 185.
7. Stanford, B. *U.C.H. Mag.* 1940, p. 42.
8. Bentley, F. J. and Leitner, Z. A. *Brit. med. J.* 1940, **1**, 879.
9. Thomas, A. R. *Publ. Hlth., Lond.* 1939, **52**, 347.
10. Cranch, A. L. *Ibid.* 1940, **53**, No. 8.

CONSCRIPTION OF DOCTORS FOR CIVIL DUTIES

THE Minister of Labour has decided that so far as may be necessary to ensure the provision of adequate medical staff for hospitals or for public purposes he will exercise his powers under the Emergency Powers (Defence) General Regulations to direct doctors to perform such services as he may specify. For the present directions for this purpose will normally be given only to medical practitioners, men or women, within the first two years after qualification. It is anticipated that essential posts will be staffed in the great majority of cases on a voluntary basis and that it will only be in a minority that compulsory powers will have to be exercised. The powers are exercised through national service officers appointed by the Minister. For this particular purpose he has appointed senior officers of the Ministry of Health and of the Department of Health for Scotland to be national service officers. In the exercise of these powers national service officers will have the advice of the two Central Medical War Committees.

THE chair of midwifery at the University of St. Andrews has been offered to Dr. MARGARET FAIRLIE, clinical lecturer in gynæcology in the university.

THE MEDICAL DIRECTORY.—Messrs. J. & A. Churchill Ltd. write: "To maintain the accurcy of our annual volume we rely upon the return of our schedule which has been posted to each member of the medical profession. Should the schedule have been lost or mislaid we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification." Messrs. Churchill's address is 104, Gloucester Place, London, W.1.

HONOURS IN THE SERVICES

The honours list issued on July 11 contains the names of the following members of the medical profession:—

C.B.

Surgeon Rear-Admiral Sheldon Francis Dudley, O.B.E., M.D. Lond., F.R.C.P., K.H.P.

Colonel Ernest Marshall Cowell, C.B.E., D.S.O., T.D., M.D. Lond., F.R.C.S. (late R.A.M.C., T.A.).

C.B.E.

Colonel Gordon Wilson, O.B.E., M.C., M.B. Edin. (late R.A.M.C.).

O.B.E.

Major Colin Campbell Blair Gilmour, M.B. Glasg., Reserve of Officers, 1st (Singapore) Battalion, Straits Settlements Volunteer Force.

Lieut.-Colonel Ernest Wentworth Wade, D.S.O., M.D. Lond., R.A.M.C.

Lieut.-Colonel Herbert Walker, M.C., M.R.C.S., R.A.M.C.

M.B.E.

Lieutenant (acting Major) Edmund Gillett, M.R.C.S., R.A.M.C.

M.C.

Captain (acting Major) William Melville Arnott, M.D. Edin., R.A.M.C., T.A.

Captain (acting Major) Norman Pyecroft, M.B. Leeds, R.A.M.C., T.A.

Captain John Russel Heslop, M.B. Durh., R.A.M.C., T.A.

Lieutenant (acting Major) Hamish Allan, M.D. Lond., R.A.M.C.

Lieutenant (acting Major) Charles Walter Simpson, B.M. Oxfd, R.A.M.C.

Lieutenant (temporary Captain) Mark John Lindsey, M.B. Lond., R.A.M.C., T.A.

Lieutenant G. D. Macintosh, R.A.M.C.

Lieutenant Frederick Morley Smith, M.R.C.S., R.A.M.C.

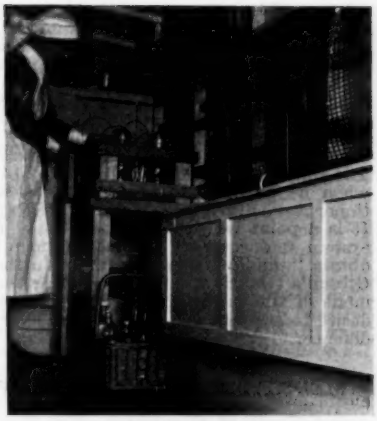
Special Articles

MOBILE UNITS AGAIN

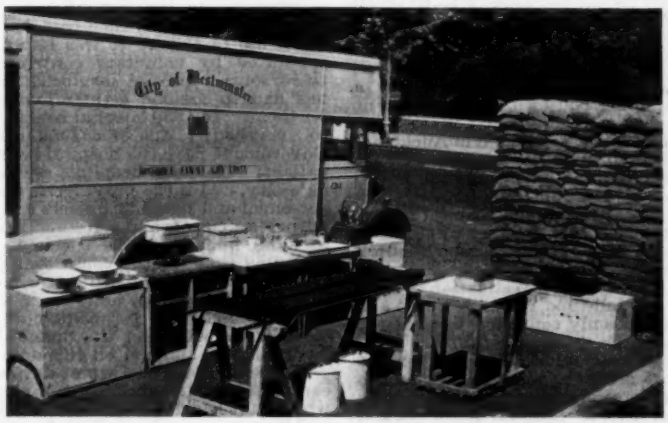
IN our hush-hush existence today our right hand sometimes finds it hard to tell exactly what our left hand is about. Rather in the manner of the lady at Lord's who said "Yes, but what *are* Hobbs?" a reader has asked us what a mobile unit looks like. It consists of a van fitted with removable cupboards and containers in which all the necessary equipment of the post is stored. There are six cupboards in the van, made in two sets of three. The bottom cupboard in each set is fairly wide and deep; the second cupboard is smaller and fits on top of it, and the third and smallest cupboard fits on top of that again. The upper cupboards when empty can be up-ended to form seats, or used as shelves, and the bottom cupboards can be used as tables. One of the small cupboards has a lock and key and contains a supply of dangerous drugs, the anæsthetic equipment and the surgical instruments. The other small cupboard holds small dressings, bleach and tannic dressings, lotions, antiseptics, eye-shades, tourniquets, clippers, razors, scissors, medicine glasses and torches. Of the two medium sized cupboards, one holds larger dressings and bandages and the other overalls, towels, hot-water bottles, Gooch's splinting, straps and buckles, arm splints, a common saw and a jack-knife with a lanyard. One of the two large cupboards contains rolls of cotton-wool and large dressings, and the other a fish-kettle steriliser, kidney basins, trays, an irrigator, dressing buckets and buckets to carry water, a bedpan, waterproof sheeting, matches, candles, soap and methylated spirit.

Besides the cupboards there are a long box for splints, and two packing cases holding heating and lighting equipment. Heating equipment consists of a Primus stove to boil the fish kettle, and lighting equipment of hurricane lamps and a can of paraffin. Finally, there are two stretchers, with trestles to rest them on, about twenty blankets and three gallons of water in jars.

Treatment is not carried out inside the van. Any convenient building can be used as a temporary dressing station, and the contents of the van are unloaded and unpacked in the place chosen. Some units carry an awning which can be fitted on at the rear of the van to make a shelter against rain where no building is available. The unit can augment the work of any fixed first-aid post which happens to be overworked; or it can go to the site of the damage, open up in a convenient building and work in collusion with the first-aid party at classifying and evacuating the injured; these activities were described in our earlier article (*Lancet*, June 22). When hospitals become too crowded to cope with casualties, mobile units can form temporary casualty hospitals in any appropriate building close at hand, where light and water and possibly a telephone are available.



Inside the van.



The unit unpacked.

The personnel consists of a medical officer, a trained nurse, and a staff of eighteen, working in shifts, but in some areas this has been changed with advantage to a team of full-time workers consisting of a doctor, a staff nurse, five junior nurses and two trained male orderlies.

Mobile units are based at strategic points throughout the area, preferably at hospitals. Maps are being made of the various districts in an area showing which buildings could appropriately house the mobile unit if a bomb fell in the neighbourhood. Drivers and personnel are making themselves familiar with these buildings and the quickest routes to them. When damage is reported the central control body in its message to the mobile unit will be able to indicate which is the nearest suitable site, and to warn them if any of the buildings previously earmarked have been damaged. The final choice of a site is made on the spot by the doctor and the incident officer in consultation.

The unit in action.

MEDICINE AND THE LAW

An Impersonator Sentenced

THE manslaughter charge against Andrew John Gibson, 71, who had acted as locum tenens at Stoke-on-Trent City Maternity Hospital and who was said to have posed as Dr. H. C. R. Darling of Australia in order to obtain that post, came to an end at Stafford Assizes last week, when the accused was found guilty and sentenced by Mr. Justice Hallett to 10 years' penal servitude. It may be recalled that, when the case came before Mr. Justice Hawke at a previous assize, he successfully applied for an adjournment of his trial (*Lancet*, Feb. 24,

1940, p. 376) on the ground that he could obtain evidence of his medical qualifications from Australian sources. During the hearing last week he was asked by the judge whether he had a scrap of paper of any kind to show that he had held any medical or surgical qualifications at any time. "I have not been able to get any evidence here," he replied, "that would be of any value in this court." Previous convictions were proved by the police, who described Gibson as a callous and unscrupulous rogue. The difficulty of proving the falsity of a man's claims when he purports to impersonate a registered practitioner resident overseas may not have arisen in this case. It is a point which needs attention. So also does the system under which unqualified men can manage to obtain "public" appointments. In the special facts of Gibson's trial, it would now appear that the postponement of the proceedings was an abuse of the judicial desire to see that the prisoner had every facility for his defence.

MEDICAL PRACTICE IN NEW ZEALAND

NEW ZEALAND became a colony of the British Empire in 1840. The two main islands cover an area the size of Great Britain and Ireland and a thousand miles lie between Auckland in the north and Dunedin in the south. Medical training is perhaps a little more accessible to the not-so-well-off in New Zealand than it is in England; many students can live at home and plenty of Government scholarships are available. In their early years of training students can add to their resources by helping on a farm or the docksides during the long vacation. They stick close to their work and have too little time, perhaps, to consider the philosophical, sociological or economic aspects of it. The University of New Zealand is an examining body with six constituent colleges; a medical student may do his first year's work at any one of the four chief colleges, situated in Auckland, Dunedin, Christchurch and Wellington respectively. From his second to his fifth year he attends the Otago national medical school in Dunedin and for his sixth (clinical) year he may choose the public hospital in any of the four cities mentioned. The number of students in each year has fluctuated between thirty and a hundred in the past twenty years. Little has been attempted in the way of original research or investigation; there are few appointments for full-time research work, and those which exist are not keenly contested because the students see so little research going on. Nor has post-graduate education been attempted. Indeed, for the first seventy years most students went to England to qualify and there is still a strong tendency for them to go abroad, after a year or two as hospital residents and before settling in practice. They usually spend from one to five years in England, taking resident posts and working for a higher degree—membership, fellowship or some special diploma. Many, of course, never return to New Zealand, but find opportunities in London or the provinces for special work.

* * *

There are not enough specialist appointments in New Zealand to give scope to those who do return and many are obliged, somewhat reluctantly, to enter general practice. A general practitioner in one of the four main centres may do everything usually done in general practice including lodges (the equivalent of panel practice), anæsthetics and midwifery; he may also be an F.R.C.S., hold an appointment as senior surgeon at a public hospital and teach clinical surgery to the final-year students. Though some general practitioners attempt nothing more than minor surgery and medicine and have large lodge lists, they are relatively few; most do a little surgery even if they limit it to tonsils and appendices. The general standard of practice is, perhaps, higher than in towns in England and competence, in a general way, greater. The failings are overwork, leading to careless diagnosis, insufficient grouping into teams for mutual relief—this is being overcome—and the fact that many men look on general practice as a stepping-stone towards some specialism or to residence in a more select locality. In rural areas doctors undertake all classes of work and generally do it very well; but the life is wearing and after a few years they tend to migrate to easier places in towns or special practice, often bringing a small fortune with them.

Consulting practice is difficult to attain at any stage in New Zealand, particularly at the beginning of a career. The distinction between consultant and general practitioner is not as clear-cut as it is in England and the people, long used to expect everything from one man, sometimes resent being passed on to another doctor. Then, if the would-be consultant succeeds in getting a hospital appointment he has to secure his re-election every two or three years in the face of political cross-currents in the hospital board. In several large hospitals no effective medical advice on appointments is given or taken by the board. Until recently hospital appointments were honorary, as they are in England; but fees in consulting practice being small, the man appointed is forced to spend more time on practice and less on hospital work than perhaps he would wish. Moreover, he finds patients who are in a position to pay going readily to the public hospitals; as a result he soon gives up any endeavour to study groups of cases or results of treatment in a scientific manner and joins with those who try to keep the hospital service mediocre. "You can't do that, young man; it would make the place too good," was the reply given to one enterprising newcomer to the staff. Lately a new system of part-time payment for visiting consultants has been introduced, ranging from £500 to £250 a year.

* * *

The public hospitals were founded as Government institutions, in the first place to care for the Maoris, but later the poorer members of the white community made use of them. It was hoped that they would be supported by voluntary contributions and rates, but these sources proved insufficient and the Government has had to assume greater and greater responsibility for them. In 1939 hospital benefits were made available to everybody; out of a fund raised by taxation the Government pays the hospital board 6s. a day for every patient. Thus the hospitals are recognised as a public necessity, and if the provision is not generous for expert personnel and scientific objects it is adequate for routine purposes, and safe and certain. Every citizen has a right to avail himself of the services of a public hospital, including those of the consultant staff, but private hospitals exist for those with better incomes. Many of the better-income group, however, make use of the public hospitals and the payment now offered to hospital consultants will offset the financial disadvantages they have hitherto suffered on this account.

At the end of a century of development New Zealand can congratulate herself on an organised medical service which, if it has defects, is also full of promise. Hospital buildings may not be perfect, but they are there, and are often better than those in which first-class work is being done in older countries. The men are there too—individually able and generally well-trained. Here, in a new country and a small one, handicapped neither by custom nor the immediate alarms of war, experiments could be made and a better system found. All that is wanted is conscious acceptance and pursuit of better aims.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

SOME WORDS TO ABERDEEN GRADUATES

LORD MESTON, chancellor of the university, presided at the summer graduation last week. In addressing the graduates, he said that a new chapter in our island story might have opened before they met again. They were all confident that their university would take a worthy share in the writing of it. There was plenty for them to do, even those of them who were not privileged to do active work. They could discourage the vain boasting which was sometimes mistaken for optimism, and the gloomy gossip which it was not worth while calling pessimism. If invasion came, and this was far from certain, they could remind themselves and others that they were only experiencing what we had watched with comparative equanimity when it happened in the countries which the Germans had already desecrated.

But they could be more than merely negative. They could, if their training had given them any gift, help to organise what was called the morale of the people, meaning that they could set an example of courage, balance, and helpfulness, bidding good-bye for a time to their fads and prejudices and standing by those who were called to suffer more than themselves.

VOLUNTEER HOSPITAL SUPPLIES

Over fifty workers of the Women's Maintenance Council have been attending the Edinburgh Infirmary each day, and from now on there will be three evening sessions a week as well as a Sunday shift. The workers have made 165,000 swabs, 5000 garments for the maternity pavilion, 5000 general hospital garments, operation stockings, many-tailed bandages, pieces of theatre equipment, and large numbers of plaster bandages. There is a daily output of 64 dozen sphagnum-moss dressings. Monthly second-hand and jumble sales have been held in the old maternity hospital.

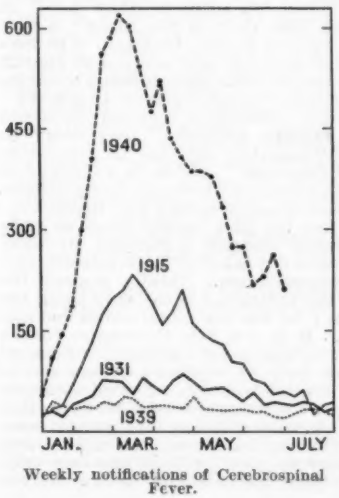
A PUBLIC-MINDED DOCTOR

The death occurred on July 6 of Dr. David Elliot Dickson who had been in practice in Lochgelly for forty-two years. Working chiefly among miners, he made a special study of the incidence of miners' accidents and ailments, and two years ago, at the request of the Leverhulme Trust on Occupational Research, he undertook the production of a book on the conditions of miners' work and the incidence of sickness which is in the hands of the publishers. He was also interested in diseases of the blood, particularly in relation to miners' accidents and illnesses. Dr. Dickson was secretary of the Fife branch of the British Medical Association and for fifteen years represented Fife on the council of the association. He was chairman of the conference panel committee for Scotland and was the first Scotsman to preside at the annual panel conference in London. In 1931 he was president of the Edinburgh Harveian Society, and he was the author of Nelson's Medical Dictionary. Dr. Dickson was born at Blairgowrie in 1874, and graduated M.B. from the University of Edinburgh in 1897. He obtained his M.D. in 1908 and the F.R.C.S.E. in 1907. He is survived by his wife, one daughter, and three sons, two of whom are in medical practice in Middlesbrough.

Public Health

Spring and Summer Infections

THE accompanying table shows the notifications of some infectious diseases in England and Wales during the first half of the present year compared with those in the first halves of the previous six years. Although the absolute numbers are open to error, owing to misdiagnosis and changes subsequently made, they are of value in showing broadly the secular trend. Notifications of scarlet fever have this year been week by week consistently and considerably below the figures of previous years, and the half year's total is only 60% of the minimum figure of 1934–39. The reported experience of diphtheria has also been very favourable, though in the past six weeks notifications have not been much below the level of last year. Acute poliomyelitis (including polio-encephalitis) invariably shows an autumn rise, so that the figures for the first six months of the year are usually low. The level in 1940 has not differed materially from the pre-war experience of last year. A slight increase in incidence has been apparent in the last three weeks. The excess of typhoid and paratyphoid has been, as pointed out in our issue of July 13 (p. 56), the product of a somewhat wide distribution in the last few weeks. The return for the week ending June 29 showed a decline to 155 cases from 204 in the preceding week. There has been a sharp drop in notifications in the borough of Kettering (from 26 to 5), in the urban district of Consett (from 35 to 10) and in Bristol (from 14 to 7). On the other hand they remain high in the group of Essex urban districts referred to last week, and small batches of cases are reported from other areas—e.g., Coulsdon and Purley 10 cases, Whickham U.D. (Durham) 9 cases. The real blot on the escutcheon is, of course, cerebrospinal fever, the notifications of which have reached a total of over 9000. The diagram shows its weekly trend in comparison with past experience and reveals that the slow or halting downward trend of the last three or four months still leaves the incidence far above the normal; thus in the week ending June 29 there were 213 cases compared with 26 in the corresponding week of last year. Sheldon Dudley's observations on the incidence of infectious diseases in naval training establishments and the work of experimental epidemiologists with their herds of mice indicate that high rates of recruitment both to human and rodent herds favour the spread of infection among both new entrants and old-stagers. Such a factor may well be active here, with the rapid calling-up of conscripts, the mixing of many groups of people in A.R.P. and now in L.D.V. work, and the unusual shifts of the population under evacuation schemes. The orthodox methods of prevention—improved ventilation and increased spacing, especially at night—are difficult to apply at this time and may be insufficient to overcome the high risks produced by the circulation of population.



Weekly notifications of Cerebrospinal Fever.

NOTIFICATIONS OF INFECTIOUS DISEASES IN ENGLAND AND WALES IN THE FIRST HALF OF THE YEAR, 1934 TO 1940

Year	Scarlet fever	Diphtheria	Cerebro-spinal fever	Polio-myelitis and polio-encephalitis	Enteric fever (typhoid and para-typhoid)
1934	75,154	31,124	726	163	551
1935	62,256	36,726	539	166	592
1936	55,471	27,842	617	146	624
1937	41,757	27,446	760	154	863
1938	55,363	34,186	823	150	584
1939	42,939	24,826	898	233	564
1940	25,222	18,219	9198	252	1000

Infectious Disease in England and Wales

DURING THE WEEK ENDED JUNE 29, 1940

Notifications.—The following cases of infectious disease were notified during the week: smallpox, 0; scarlet fever, 1058; whooping-cough, 758; diphtheria, 760; enteric fever, 155; measles (excluding rubella), 8338; pneumonia (primary or influenzal), 478; puerperal pyrexia, 137; cerebrospinal fever, 213; poliomyelitis, 25; polio-encephalitis, 1; encephalitis lethargica, 6; dysentery, 34; ophthalmia neonatorum, 81. No case of cholera, plague or typhus fever was notified during the week.

The number of civilian and service sick in the Infectious Hospitals of the London County Council on June 28 was 595, made up of: scarlet fever, 107; diphtheria, 133; measles, 20; whooping-cough, 25; enteritis, 39; chicken-pox, 19; erysipelas, 21; mumps, 11; poliomyelitis, 1; dysentery, 0; cerebrospinal fever, 43; puerperal sepsis, 27; enteric fevers, 25; german measles, 7; other diseases (non-infectious), 28; not yet diagnosed, 89.

Deaths.—In 126 great towns, including London, there was no death from smallpox, 2 (0) from scarlet fever, 1 (0) from enteric fever, 5 (0) from whooping-cough, 7 (0) from measles, 9 (0) from diphtheria, 34 (8) from diarrhœa and enteritis under 2 years, and 7 (0) from influenza. The figures in parentheses are those for London itself.

Newcastle-on-Tyne reported the fatal case of enteric fever. There were 7 deaths from diarrhœa at Birmingham, and 3 from diphtheria at Plymouth.

Letters to the Editor

THE CLOSED PLASTER METHOD

SIR,—At the hospital to which I am attached a considerable number of infected war wounds have been treated by the enclosed plaster method and a certain number of problems have arisen. As Professor Girdlestone says, it is essential that the wound and all its recesses should be laid open, but it seems also absolutely necessary that there should be free drainage beneath the plaster. My experience has been that this condition is not always complied with when the plaster is applied directly to the skin, with only a "thin and evenly applied gauze dressing" over the wound itself. With this arrangement there is apt to be absorption from the wound, discomfort, and rise of temperature. It seems much better to have a sufficient thickness of wool over the gauze in the region of the wound. Moreover if this wool were medicated much of the decomposition of the discharge and consequent bad odour might be prevented. We intend to put this to the test. Certainly wounds doing badly under plaster have taken a turn for the better when the plaster has been removed and reapplied according to this principle.

Professor Girdlestone rightly stresses the need for skill in the use of the plaster method, saying further that unless this exists wounds had better be treated on more familiar lines. Like statements very often appear in medical papers. What so many of us are looking for are simple instructions from the leading orthopædic surgeons; such for example as how best an arm can be held in abduction by plaster; or which is the most satisfactory way of applying a spica to the thigh. We unskilled general surgeons would be grateful for the most elementary details, and, in our ignorance, are apt quite wrongly to attribute the reticence of the orthopædic surgeons on the solution of the multiple minor problems of plaster technique to their inability satisfactorily to resolve them.

CHARLES A. PANNETT.

THE TIME FOR UNITY

SIR,—I rubbed my eyes and wondered if "visions were about" when I read my *Lancet* to-day. We may be "all in the same boat," but thank God it is not and never shall be a Nazi boat. The medical profession will never submit to be regimented on Nazi lines, save perhaps as a very temporary measure under the stress of war. Can it be that some fifth columnist has penetrated into the editorial sanctum of *The Lancet* when we are told that "in peace-time doctors are largely luxuries" and that the only solution "if the population is to be adequately served and large sections of our profession are to be saved from bankruptcy" is "the enrolment of the whole profession in a unified salaried national service"? In my view this is balderdash.

London, W.1. C. GORDON-WATSON.

SIR,—Most people will agree that the medical services of a country are an integral part of its defence mechanism in peace and war. In this country during peace-time great numbers of doctors are whole- or part-time servants of the state or municipalities: even the dear old voluntary hospital gets its subsidy from the state. In modern war-time one sees this process greatly extended, with the armed forces making large demands for doctors of military age. The voluntary principle has not succeeded in supplying these doctors, and one sees gross anomalies in the distribution and use of doctor-power among the civilian population. Now that each member of the population of the country is a liability of the state in the event of war wounds, it does not seem a far step from the peace-time status of the doctor to a whole-time war status. Therefore I agree with your leading article advocating conscription in toto of the profession in war-time. Alongside that, the whole population should be insured against sickness and wounds, in the hope that a much needed stimulus might be given to the health insurance scheme of 1912, so that it might at long last deserve the title "National," and profit in peace-time from the reforms inflicted on it by the stark necessity of war.

Earl's Court Road, W.8. W. H. DAKIN-SMITH.

SOLDIER'S DOCTOR

SIR,—With what feeling do I agree with Pertinax when he says that soldiers need proper soldier's doctors! Imbued with the Hippocratic ideal of God-inspired physicians and grateful patients, I passed the first six months of qualified life in a general hospital. I had an occasional shaking, but hardly strong enough to deviate the needle from the set point—and then I joined the army. As R.M.O. to a big training centre I began to have my first suspicions that Hippocrates was never an army doctor.

I found a large number of men who called themselves soldiers attending the sick parade with the sole purpose of wriggling out of work, out of guards, fatigues, out of marching. Varicose veins, blisters, ruptures, colds, coughs, varicoceles, and vague pains were all exploited for the new M.O. Whereas in civil life a bill would be the inevitable sequel of such a visit, here was a doctor on tap, free, ready to lead them to the land of milk and honey. A few harsh words with an example or two soon dispelled their illusions, and the sick parade dropped down to the men who were either ill or persistent.

The most persistent attenders, I found, were men who had been treated by civilian doctors, E.M.S. or not. The Englishman regards soldiering as "terribly hard for the poor boys" and at the slightest opportunity pampering the soldier becomes a favourite pastime. The natural reaction of the citizen turned soldier is away from the army, with its discomforts and its discipline, and given the opportunity of escape from the restraints of the army which sickness or injury offers, many grasp at the golden ball. The wrong treatment of the sick and wounded may set at naught the months of training in self-discipline the man has received. The army doctor is concerned with keeping his unit as fighting fit as possible; it is not first the man, but first the army. This is very difficult to understand as a civilian practitioner, and my civilian self used to regard such precepts with horror. The civilian attitude is, "Poor boy, he has gone through such a lot, let him have a little more leave." The army attitude is, "How soon can he be back with his unit?" As Pertinax remarks, "after the accidents of war, one kind of hospital treatment will make him, another kind will mar him." Let the soldier be treated in every stage of his career by the soldier doctor.

A. D. LEIGH.

SIR,—The doctors of Denbigh have no right to interpret from Pertinax's letter that "no good medicine can be done by the R.A.M.C." Military medicine in war-time differs from civil practice in peace in three ways. First, the job of the medical officer is to keep fit men fit. The preventive clinical approach is essential. He also has to spot those who may become unfit, and if men have broken down with phthisis it means that the medical officer has not kept an eye on them, not that he cannot get them investigated when he suspects they need it. Secondly, there is no light duty in the Army; a man must be fit for full duty or go into hospital. The men who are not fit for full duty but who are not ill enough to be in hospital are the ones who make military medicine so difficult. No doubt "good modern treatment" will "expedite recovery" but there is equally no doubt that the "use of modern methods" may delay it. Pertinax does not "condemn the use of twentieth-century methods of diagnosis." What he condemns is the conversion, by the misuse and abuse of these methods, of the man into the unfortunate soldier who thinks himself always ill. During the past twenty years we have heard much of abstruse diseases discovered by these methods; what we have not heard of is the manufacture of invalids by their excessive use. Thirdly, in peace the personal welfare of the individual is the only thing the doctor worries about; in war the cause comes first and the patient second. It is not fair to suggest that a medical officer is not solicitous for the soldier's personal welfare if he does his duty by sending everyone out of hospital at the first possible moment. The great majority of men will respect the tough nut who works on that principle once they have confidence that he can spot who is really ill. The small minority, old soldier and young soldier, will play up, consciously or unconsciously, to the doctor who puts the personal welfare of the

individual before the general welfare of the state. It is in this sense that Pertinax uses the term "loss of morale," and nothing can "outweigh" that in war.

London. T. B. LAYTON.

THE FRENCH COLLAPSE

SIR,—The account given by Medicus, M.P. of the French defeat (THE LANCET, July 13, 1940, p. 577), presumably reflects the attitude of a section of the House only, as it certainly cannot be called a faithful report of the proceedings or broad unbiased deductions from observed facts. He emphasises the "subtle propaganda put about among them for years" (by the Socialist party it is inferred from the context) which led to the final loss of morale, stresses the spread of "pseudo-international pacifism by the Léon Blum party" and scoffingly mentions the "usual stuff about imperialist wars." On all these phrases as themes books have been written in recent years, and in most of them the opposite view has been taken. Many of the authors of these works are eminent observers and sociologists who have studied the matters at first hand. I do not suppose you had any intention of opening your pages to political controversy and I will refrain from making the more obvious replies to Medicus's diatribes. However, may it be recorded that others have had an opportunity of hearing the "unvarnished stories" of returned members of the B.E.F. and it appears that these other stories are of different material—inadequate equipment provided by a reactionary and unprogressive War Ministry, officers who broke down and relinquished their commands at vital moments, fatal indecision at local headquarters and lack of energy and initiative, all due to deficiences in the brains and morale not of the poilu but of his rulers. Finally, as a matter of history and not of hearsay, the abject surrender carried even to a betrayal and wilful weakening of their ally was made by what are now recognised to be the Fascist sympathisers in France. I trust that some of these points are being discussed in the lobbies and if so that Medicus may report on them in his future dispatches.

MAXWELL ELLIS.

SOIL FERTILITY AND HUMUS

SIR,—In your annotation of June 22 (p. 1132) the view is put forward that vegetables of normal yield and quality can be grown in water solution by means of chemical salts only. Further it is suggested that the effect of humus on the plant lies in the influence of colloidal organic matter in maintaining the water balance. It is also indicated that Lady Eve Balfour's experiments at Haughley in Suffolk on the effect of humus and artificials on the crops, animals and human population will not yield decisive results and that simpler experiments on rats might be substituted. I should like to be allowed to traverse the premisses underlying your article.

The suggestion that high quality vegetables can be grown in water solution by means of chemicals is contradicted by the experience of the best vegetable growers in Great Britain and on the Continent, who find that humus obtained from vegetable and animal wastes is essential in maintaining high yields of first-class produce and that the crops obtained by means of artificials only are of the poorest quality. When a vegetable enterprise based on water culture is able to establish itself in the high-quality vegetable markets alongside growers of the calibre of Mr. F. A. Secrett, it will be time enough to consider the water culture of vegetables as anything more than an academic interest. The new method must write its result not in the transactions of learned societies but in Covent Garden itself. This it has yet to accomplish.

The view that the effect of humus depends largely on maintaining the water balance is contradicted by two facts.

(1) Rice is a crop grown in water culture and no question of shortage of moisture can be involved. Its response to humus is instant and dramatic, a fact which is explained by its being a mycorrhiza former and thus able to make full use of the living fungous bridge between humus and the roots.

(2) In the case of crops grown in soil the effects of humus are to be seen in both wet and dry seasons. They therefore do not depend only on moisture, although it may be freely conceded that the effect of humus in helping the soil to hold moisture is one of the factors involved in this vast biological complex.

The view that high-quality vegetables can be grown by means of mineral salts only can be instantly demolished by much simpler methods than by feeding experiments on rats. All that is necessary will be to place before a well-managed herd of Guernsey cows two sets of food: (1) vegetables grown on humus by the best vegetable growers round London and (2) similar vegetables grown by means of water culture. If the animals are allowed free choice they will instantly select the food raised on humus. This is the response of the animal all over the world and can be seen on fields one-half of which have been managed so that there is abundant humus under the turf, the other in which the formation of humus has been impeded either by shortage of animal wastes or by a deficiency in oxygen.

The importance of the Haughley experiment lies in the need of demonstrating to all concerned the principle that a fertile soil means healthy crops, healthy animals and last, but not least, healthy human beings. A few well-conducted examples on these lines will do much to convince the medical profession and the urban population that the real basis of the public-health system of the future is a fertile soil.

Blackheath, S.E.3. A. HOWARD.

*** Unless, even in a wet season, the water supply in a poor soil containing little organic matter is constant, it seems reasonable to suppose that humus may play an important part in maintaining the water balance. The preference of Guernsey cows for vegetables grown on humus is such a strong point in favour of Sir Albert's argument that his evidence for this should be published without delay. The annotation was of course not intended to discourage the use of humus for the soil. Every particle of waste vegetable and animal matter should be saved for conversion into humus. The disagreement, if there is one, concerns only the probable rôle played by this essential constituent of a fertile soil.—ED. L.

DAFFODIL AND ORANGE

SIR,—I venture to think the following will be of some interest to medical historians in this country. Last week I received a kindly appreciative letter from a patient Mr. S., living in Devonshire, telling me he was 72 years of age, in fine health and able to read without glasses. He was one of the first group of cases of acholuric jaundice—13 in number from 4 different families—shown in this country at an early meeting (I think about 1903) of the Association of Physicians in London. There were three daughters of a daffodil colour and the father was orange. Among this rather historic group he was himself specially so because at that time the condition was not well known and various fellows of the association naturally questioned the diagnosis, believing some of these cases to be Addison's disease. When they saw the daffodil daughters and orange father they were shaken.

Later, as knowledge increased, his spleen was removed, and now we know the result at the age of 72. I should add that two French physicians, Gilbert and Lereboullet, were probably the first to recognise this condition, and it had been also described in England. But this was the first group of cases, so far as I am aware, embracing as it did four different families.

Bath. F. JOHN POYNTON.

TULARÆMIA OR FLUKE INFECTION

SIR,—The annotation on this subject in THE LANCET of July 6 refers to an earlier paper in your columns (1931, **2**, 9) in which Prof. G. H. Wilson, Dr. Stuart McDonald and I reported three cases of unusual illness with eosinophilia, one with lesions in the liver resembling those of tularæmia. We believed then that these cases might be some unrecognised form of brucella infection related to American tularæmia because the histological appearance of a fragment of liver excised at operation was, in Prof. Wilson's opinion, indistinguishable from the lesions found in proven cases of tularæmia. Sections from our case were submitted to Dr. R. D. Lillie, of the

National Institute of Health, Washington, D.C., and he agreed that "the process is not inconsistent with tularæmic foci in the second month of a non-fatal illness." Some months later Dr. Kuno Bürgi of Switzerland wrote to me to say that histological changes similar to those we described were to be found in the livers of animals soon after infection with fluke (*Fasciola hepatica*) and that he believed that was the true explanation of our cases. I am convinced that Dr. Bürgi was right and that our cases had nothing to do with tularæmia. Since that time I have collected evidence that fluke infection of men is not nearly so rare in this country as is generally believed.

Edgbaston, Birmingham. A. P. THOMSON.

CRIMINOLOGY APPLIED TO TOTAL WAR

SIR,—The other day I listened to the story of an unfortunate refugee colleague who had been maltreated for several months in Nazi concentration camps before he came to this country. His narrative was not less moving because it was a repetition of all these revolting bestialities one has so often heard and read of before; but for the one difference that it gave some glimpses into psychology of Hitler's hangmen. Some of it should be known here before they are to descend on us as parachutists or other shock troops. I was interested to learn how Nazi organisation has succeeded in finding the right type of persons for tormenting defenceless Jews. From the experiences of this Austrian doctor the jailers were undoubtedly criminals taken out of prisons, and correcting houses, convicts who were promised alleviation of their long sentences if they wreaked their brutality on their victims. There is little doubt that similarly special personality types have been chosen for forming the famous Nazi shock troops and who by threat, extortion and reckless brutality have to overcome the resistance and morale of the civilian population, as they did so successfully in Norway, Holland, Belgium and France. One has to remember that there is no private life under Nazi rule and that the mental make-up of every man is just as well known and in the files of the party machine as his lists of convictions and his propensities. Thus it is relatively easy to collect groups of ruthless psychopaths, cold-blooded blackguards and murderers, and give them suitable tasks like deception by disguise, house-breaking, cutting communications, brutalising women and children, and all the cunning ruses applied in front and behind the fighting army proper. They have been carefully trained for this kind of "modern warfare" but—what is more important—they have been taken from the dregs of the people and nobody cares what happens to them, least of all their Nazi despots.

This is, of course, only one of many examples of psychology and criminology applied to total war by our enemies for their "selection of man power." It seems worth knowing in order to deal with this part of invasion in the appropriate manner.

PSYCHIATRIST.

DETECTION OF TUBERCULOSIS IN RECRUITS

SIR,—The recommendations of the Horder Committee, outlined in your issue of July 6 (p. 28), support the value of mass radiological examinations in the detection of pulmonary tuberculosis in recruits. Of the available methods for such examinations—full-size radiograms, the use of sensitised paper instead of X-ray film, fluoroscopy and miniature screen photography—the last, a recent technical development, is known to be a rapid, reliable and an economic proposition. Unfortunately the committee have found that it is not, for various reasons, practical at the present time.

I have for some time been interested in a case-finding programme in the industrial community, the aims and purposes of which have been specially directed towards the finding of significant pulmonary lesions in a large group of presumably healthy individuals. In such mass surveys refined diagnostic procedure may not be initially required and the two principal methods have been (*a*) tuberculin testing and (*b*) mass X-ray examination of the chest. The latter has been found to be the best known single means of detecting such lesions. Failing miniature screen photography, I have found that fluoroscopy is the most economic and practicable method for mass examinations. Any doubtful macroscopic lesion can be readily detected and if necessary photographed, and the financial saving in films is considerable. In an investigation of 3229 X-ray screen examinations, compared with an equal number of films taken for purposes of control, the interpretation in 94% of cases has coincided exactly with the interpretation of the film. While, therefore, the fluoroscopic method is not foolproof it can, in the hands of an experienced observer, be a practical substitute for X-ray miniature screen photography until such time as the necessary apparatus is generally available. As emphasised by Ordway and Fellows of the Metropolitan Life Insurance Co. of America, routine fluoroscopy is accurate, inexpensive, expeditious, selects minimal lung lesions and is an efficient selector of cases for röntgenography.

Finally may I suggest that in suspected cases of pulmonary tuberculosis medical boards might with advantage make full use of Trudeau's five diagnostic criteria: (1) Tubercle bacilli in the sputum on more than one examination; (2) Persistent râles at one apex; (3) Radiological evidence of infiltration of the lung parenchyma; (4) History of frank hæmoptysis of more than 1 drachm; (5) History of pleurisy with effusion. At least two of these should be present before the diagnosis of pulmonary tuberculosis is justifiable with the exception of (1), which, in peace-time at any rate, is alone pathognomonic. In war-time, however, experience has shown that malingerers may manage to secure tuberculous sputum and try to pass it as their own; hence the presence of two criteria should be demanded.

Wimpole Street, W.1. PHILIP ELLMAN.

SENDING CHILDREN OVERSEAS

SIR,—The general advantages of evacuating schoolchildren to the Dominions need no further stressing, but I would draw attention to one which especially concerns those of us in the Public Health Service, namely the removal of such children from households where there is open tuberculous infection.

I have found at my dispensaries that a large proportion of parents had yet to make a decision about evacuation, and tuberculosis officers with their dispensary organisation could play a prominent part in persuading parents in such households to take advantage of the scheme. This could be accomplished not only by personal contact but also by circularising homes where children were exposed to infection. In addition, medical superintendents of sanatoria could take steps to point out the benefits of the plan to patients in their care, whilst the family practitioner might assist undecided parents in those households having no contact with the tuberculosis service.

A time like the present, when the risk of infection is increased by close congregation in air-raid shelters and by a lowered resistance due to general strain, calls for an energetic appreciation of the possibilities of the scheme in reducing the incidence of tuberculous infection in our young population.

Mount Sanatorium, Bishopstoke, Hants. A. CAPES.

PLENTY of books are available on the diet of the solitary child, but group feeding of a number of small children presents special problems, and these are confidently tackled by Margery Abrahams, dietitian to St. Bartholomew's Hospital, in her pamphlet, "Nursery School Diet" (London: Nursery School Association, pp. 40, 6*d*.). In its second edition she has brought the text up to date, and talks sensibly about her subject, giving the composition of essential foods, menus for nursery schools and recipes showing quantities for groups of children. A few of her statements are unquantitative; for example, writing of inorganic salts and vitamins, she says: "Some of these dissolve into the water in which they are cooked, and therefore vegetable water used as a stock for soup and stew gravy in which vegetables have been cooked have a special value"; and again, "brown bread, for instance, should be used as well as white because of the larger amount of calcium, iron and phosphorus it contains . . ." Statements of this kind give an exaggerated idea of the quantities involved and may mislead the layman. But these are minor blemishes in an otherwise excellent and welcome pamphlet.

In England Now

A Running Commentary by Peripatetic Correspondents

ONE odd effect of this war has been the disruption of my peaceful life as a general surgeon by 120 urgent calls to sea. These, coupled with the worst winter for forty years, have yielded some experiences which at the cost of a certain amount of personal discomfort have provided me with a thorough break from routine and a curious cross-section of the progress of the war. Starting with a Spanish tramp (changed to British owners to run contraband during the civil war) the list ends with a Nazi seaplane shot down in the late evening a few days ago. In between come ships of almost every maritime nation, of all shapes and sizes and each with its clinical problem. For instance, you find a patient seven miles from shore in a thick fog with a temperature of 105° F. and double pneumonia. His ship is outward bound to South America and there is no doctor on board. The only available transport is your small open boat half full of snow and nothing bigger can land on the beach, the pier having been destroyed. What does A do? In this case we blew various distress calls on the ship's siren and eventually bagged an examination tug, put the patient down the stokehold against the boiler, sent the small boat on ahead and followed to within half a mile of the shore—as near in as wrecks and shallowing water would allow. Then we got back into the little boat and rushed the patient, half stifled in three layers of oilskins, ashore to a waiting ambulance and so to the hospital where M. and B. 693 and oxygen returned him convalescent to Italy a fortnight later.

* * *

Boarding ships in rough weather is always an adventure. The ship may stay still; the boat and rope ladder do not. The secret is to snatch the fleeting moment when all three are together and hang on, because the next second may find the boat eight feet away. You then climb rapidly before it comes back and hits the place you just left. Coming back is worse, especially if you alight on the anchor. Apart from a week off with a badly bruised tibia—a product of over-confidence—I was lucky, but I still breathe a sigh of relief for a safe landing, especially on dark nights. Someone once said to me that it must be very unpleasant to have the risk of mines and enemy action added to the normal behaviour of the North Sea, which was bad enough anyway. Actually, one rather offsets the other. I once had to take the lifeboat out four times in twenty-four hours in some incredibly beastly weather and it wasn't till it had finally landed that I realised that I had been much too frightened to be sick. Most of the serious cases and all the major surgical cases I was able to land and deal with on shore—they total sixty-five in this series. The rest, including minor operative cases, received treatment on board, usually with the skipper and mate as first and second assistants. One memorable occasion was an operation on a hand under regional anæsthesia in the hold of the fishing trawler *Atlantic* in a choppy sea. She had been held up with a cargo of fish in contraband controls for three weeks, and a red-hot stove kept the temperature down below at about 80° F. The remainder of the crew sat round the stove and sucked oranges while I dealt with the patient. Incidentally the best method of ensuring stability at sea is to sit on the patient so that you both move together. I don't think that the bedding in the bunks around the hold had been changed since the ship was built, and the atmosphere was beyond belief. I like to think that it was the subtle discord of the oranges, rather than the motion of the ship, which so nearly effected a result that the life-boat had failed to achieve. But it was a near thing.

* * *

I wonder what went on in the mind of Horatius that day he kept the bridge? Did he really feel as noble as Macaulay made out or was he cracking the odd joke with Spurius Lartius, wishing his left sandal didn't rub his heel, and thinking what a funny face old Tarquin had once you got a good look at it? I suspect it was rather like that. At the moment we present an odd picture at the other side of the Atlantic. Either we are brave Horatius or else we are the toad beneath the harrow, it's hard to know which; but in any case people are thinking of us kindly and sympathetically and looking after our children and doing all they can to help. An American medical student writes with the sincere kindness of a sincere race: "My heart goes out to you, and I hope that some thought of mine may help you, especially now when the clouds are getting darker and darker." Well of course it helps us, she can be sure of that. And no doubt the clouds are getting darker and darker and we all ought to be feeling uplifted on the eve of great doings; only unfortunately we aren't really built for it. The whole country seems to be in the de-bunking Cockney humour in which the troops fought the last war; nobody looks at all noble and certainly nobody feels it. Having our tea rationed seems to have been the first serious blow of the war to many, but otherwise the clouds seem to be holding up nicely, and we are enjoying ourselves in our own way like the lady on the steamer. I don't know whether we are adaptable or torpid or merely dumb, but speaking as a toad it seems to be easily the most comfortable way of putting up with a harrow.

* * *

When the war began we realised that our area was likely to be "for it" as soon as the Germans got across Holland and Belgium, but in the meantime, with the exception of a number of preparatory schools and a smaller number of convalescent homes which wisely evacuated themselves, most of the population stayed put, and we had on the whole a quiet winter. But with the invasion of France and the ending of the continental campaign a larger migration of the people naturally took place, and its effects on the economic life of the district have been terribly complete, though there has been no complaining. With the closing down of trade, the medical profession has inevitably suffered. Patients have departed and institutions have closed, and a once busy colleague of mine told me that his visiting list had shrunk to about three a day. Our heavily evacuated area is only one of hundreds. What, especially in view of the likelihood of a pretty full measure of socialism being applied to public services, is to be the policy of us doctors and the Ministry of Health?

With regard to the emergency hospital services, while private practice was still in being, the rates of pay, whether on a sessional or on a capitation basis, were merely subjects for academic discussion or protest; but when private practice disappeared such payment was obviously of no use to doctors deprived of their means of subsistence, and now a number of whole-time appointments to institutions have begun to be made, with a uniform rate of pay of £550 a year plus £100 in lieu of board and lodging. For those, of whom I was one, who were on the waiting list for service in the Royal Navy, R.A.M.C. or R.A.F. it now became impossible to await an appointment to a post either on active service or in the E.M.S., and it was galling to find that, in one's absence in search of a living elsewhere, another doctor had been appointed at a salary to the post which one had filled in an honorary capacity for many years. I suppose these anomalies are implicit in war, but it does seem regrettable that the effect of evacuation on medical practice could not have been anticipated.

Whether there is any complete solution for so wide a geographical and sociological problem except a state service may be doubted; no one would like to see the professional life of the country immersed in a flood of bureaucratic memoranda, but since the National Health Insurance Act has worked fairly well we should at least consider a general hospital service. All of us who have served on the staffs of voluntary hospitals would regret the passing of the voluntary principle, but economic conditions are beginning to weigh so heavily on us that we may have to accept further drastic modifications of it. It is difficult to see how so large a problem can be tackled piecemeal, and I for one have no ready-made solution. Will all doctors residing in the evacuation areas be drafted into a single state service so that they can be kept out of the workhouse until their respective talents are scheduled for their most appropriate use? Fortunately there are wise heads that have the genius to shadow forth schemes for such monumental changes as we are passing through. Let me merely express the hope that these may find expression, when they do

come to light, in everyday English rather than in that of the Home Office.

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My experiences as an interim evacuee have been encouraging. Doctors in the area where, for the time being, I am getting a little work in pursuit of my own evacuated patients have been generally kind and helpful. True, one practitioner who was approached by a colleague with a view to my participation in local A.R.P. measures at the hospital said that I had come in as a competitor and that he had no wish to meet me; but I have received work from several of the other local men and their families and am glad to bear witness to the fact.

We certainly had a fine finale before the last exodus began. On Intercession Sunday a padre who had been through the last war told our trembling ears that we had no faith if we did not believe that God could still work miracles; he had known poison-gas rolled back among the ranks of the enemy against all the probabilities foretold by meteorological advisers. I sustained my own small part of the national anxiety by reading the stories of the Red Sea deliverance and of Sennacherib. But on the Tuesday King Leopold appeared to have made the situation even more desperate and anxiety grew worse, if possible. Then from the sea-shore of our local towns we began to witness those days of sea-circuses, when every sort of craft set off through the mine-fields and returned loaded with hundreds of rescued Englishmen and Frenchmen. They were fed by women who exhausted their physical powers in merely cutting bread continuously for days on end; they were moved on and their places were taken by freshly evacuated troops all hungry, tired and cheerful. We got many severely wounded men at the local hospitals.

On the Saturday night, after reading on a news-sheet that 330,000 had been returned from Dunkirk, I was assisting the surgeons in the operating-theatres and the wards until 5 a.m. on Sunday; and I got to bed, only to be woken up at 7.30 by a curious sound as of a bird-chorus. I shall never forget that noise—the noise of hundreds of children being sent to a safer place. So must the children have sounded as they followed the Pied Piper of Hamelin. I was wide awake, and going into the church in which I had heard the preacher on the previous Sunday I realised with awe that IT had actually happened: the seemingly impossible, the prayed-for miracle, was an accomplished fact. One had lived to witness that. I am not a betting man, unfortunately, but I can only suppose that so would a man feel who had been given a tip for a certainty. That is what we received that week—a guarantee of a victory that is inescapable—we have only to hold on for all we are worth.

* * *

My small house contains four people whose massed ages are 260 years and we are on the direct line to Crowdville and Merryport. We have only a primitive cellar and I was rather hampered by the most ancient of us, as you can imagine. We hear the unmistakable sound of the Bumble Jerries as they go across and the bombs even some miles away shake the place; seven of them that dropped a quarter of a mile away, though they only killed a cow, made the household leap a bit. It is strange to think that years ago I used to tuck my small daughter into a wine cellar in Devonshire Place and now once again am visited by these odious inventions. Perhaps this is a judgment on me for giving the first lantern dissertation in this country on the history of flight, and for pointing out some twelve years ago to the Royal Society of Medicine the difficulty of protecting London. At one time I had one of the first collections on these subjects in Europe; some of them are now given to the Royal Aeronautical Society and the Science Museum. I have still a period French Table, ca. 1783, inlaid with the first aerial journey ever made, by de Rozier and d'Arlandes in 1783 across Paris. Quite unique.

* * *

The hop vine twists with the sun, clockwise; the sinister bindweed and the scarlet runner the opposite way. Rarely, they say, you get freaks—hop vines that twist against the sun. I wonder if the beer from these tastes different and what the origin of the abnormality is. A mere chance? Certainly not. A provident mutation in case the world starts twisting the other way? I wonder what these things do in the southern hemisphere. Is dextrocardia more common in Australian aborigines? What a subject for an essay: "Twisting," tracing in logical sequence the connexion between dextro- and lævo-rotatory crystals and the girl who took the wrong turning!

Obituary

ROBERT BRYSON RUTHERFORD

M.C., M.B. EDIN.; MAJOR, R.A.M.C.

Major Robert Rutherford who died from wounds received in France on May 28 was second in command of the 183rd Field Ambulance. He was standing talking with the commanding officer and the quartermaster of the unit near an ambulance when a shell burst on the other side of it, and all were wounded in the legs. Major Rutherford died from hæmorrhage before they could reach Dunkirk.

"Bobbie" Rutherford was born 49 years ago at Berwick-on-Tweed. He graduated M.A. at Edinburgh in 1908, and M.B. in 1912. He came to the Royal Infirmary, Sheffield, as a house-surgeon in 1912 and endeared himself to his resident and senior colleagues by his comradeship, his enjoyment of the work and zest in life. Just before the last war he became partner in a medical practice in the city but joined up directly war was declared. He served in France and was awarded the military cross in 1917. He retired from the Army after the war with the rank of major. Later when the Territorial Army was re-formed he joined the local unit of the Royal Engineers as the medical officer and retired in due course when he reached the time-limit. He rejoined in July of last year and went to France in April.

Besides running a busy practice he acted as "recruiting medical officer" for Sheffield, and for the last 14 years he had been one of the local medical officers to the Post Office. In 1921, he was elected a freeman of the Borough of Berwick on Tweed. He was buried with military honours at Shorncliffe on June 4.

He leaves a widow and three daughters.

JOHN REID MUIR

M.B. EDIN., F.R.C.S.E.; LIEUTENANT, R.N.V.R.
SURGEON REAR-ADMIRAL, R.N. (retd.)

When he was 13 John Reid Muir was already sailing a yacht in the Caribbean Sea, and while studying medicine at Edinburgh he sailed single-handed from the Firth of Forth to the Dutch coast. He had qualified as a master mariner and when at the outbreak of this war the retired surgeon rear-admiral, then aged 66, volunteered for service again he was commissioned sub-lieutenant in the R.N.V.R. and appointed to H.M. yacht *Campeador V* as navigator and watch-keeper. Later he was promoted lieutenant. He was killed in June by enemy action when his ship was sunk by a German mine.

Muir graduated M.B. from the University of Edinburgh in 1894 and after holding house posts there and serving with the P. & O. he joined the navy in 1900. He was promoted to the rank of surgeon commander in 1914 and when war broke out was appointed to H.M.S. *Tiger*. For his services in the battle of Jutland he was commended by the commander-in-chief of the Grand Fleet and awarded the croix de guerre. In 1917 he became medical officer at Wei-Hai-Wei, and served there till he was invalided home in 1919. Soon after his return he was appointed to the R.N. hospital at Haslar for surgical duties, for he was a first-rate operator. He became surgeon captain at the end of 1923 and continued his work at Haslar until he was placed on the retired list in 1928 with the rank of surgeon rear-admiral. He went to live at Paignton where sailing and writing filled his days. He described his experiences in the last war in "Years of Endurance," and his hobby in "Messing about in Boats." Early this year we reviewed his new life of Captain Cook.

PROFESSOR PLAUT

Dr. Felix Plaut, who took his life on June 27 rather than enter an internment camp, was director of the psychiatric research institute at Munich, under the

Second Reich. In his early days he came under the spell of Ehrlich and Wassermann; later he was one of the team which included Kraepelin, Nissel, Alzheimer, Brodmann and Spielmayer and made Munich an important centre of psychiatric research. Plaut's own interest centred around the cerebrospinal fluid and the problems of syphilis. Working with Wassermann he established (1906) the diagnostic value of the W.R. in the spinal fluid. But there are few problems of biochemical, clinical, experimental or therapeutic nature to which he and his pupils did not make original or critical contributions. He was one of the originators of the relapsing-fever therapy of general paralysis and by describing a method of cisternal puncture in laboratory animals he put experimental research on syphilis upon a more scientific basis. In recent years he was occupied with the relationship of vitamin C to neurological and psychiatric conditions and a Rockefeller grant enabled him to go on with the work in this country, during the past year using a laboratory of the malaria treatment centre at Horton Hospital, Epsom.

Plaut was bound to this country by many personal ties. His late brother, was a well-known figure in the City. In 1907 he was working with Ronald Ross at the Tropical Institute in Liverpool. In 1914 he lectured in London at the invitation of the Royal Commission on Venereal Diseases, and met Mott, with whom he remained in cordial contact. All who knew him intimately speak of his love and admiration for this country. He will be missed by friends all over the world.

Parliament

ON THE FLOOR OF THE HOUSE

By MEDICUS, M.P.

THE debate on agriculture last week brought the war situation before the House in a different perspective from that of the heroic fights of the B.E.F. in France and the magnificent efforts of the Air Force at that time and now. In the last words of the Minister of Agriculture's speech, which lasted for an hour, Mr. Hudson expressed grave fears of the European food situation: "Tens of millions of people," he said, "on the continent of Europe will face in the next few months the danger of starvation. Many millions may well perish, but British agriculture, with modern methods, modern machinery, modern science and the necessary enthusiasm and drive, can and will play a very large part indeed in saving the people of this island from suffering a similar fate."

To deal with this situation the agricultural programme of ploughing up two million more acres, which has already been realised and even exceeded, makes a good foundation, but much more will be needed. It is already anticipated that in the first twelve months of the war agricultural production will exceed that of the last 18 months of the Great War when Mr. Lloyd George's campaign was at its peak. In addition to this we have in this country at present adequate supplies of food and a good reserve, "but if we are prudent, we must face the possibility that we may not always continue to be so fortunate" in the importation of food, and must therefore take energetic steps to increase greatly agricultural production. Mr. Hudson quoted scientific opinion to the effect that the population of this country "could live in a condition of health, able to work hard and to produce munitions and to fight, on a very different diet indeed to that to which we are accustomed, and a diet which has the further merit that the greater proportion of it could be grown in this country." The Minister added that he did not know if it would be a very palatable diet until we got used to it, but he had put in a plea that it should be supplemented by beer.

* * *

In order to get this greatly increased production it will be necessary to carry out a survey of each individual farm in this country with a view to seeing not only how much can be got from each farm but how much can be got from each field.

There must be increased prices, increased wages, increased supervision of farming and extended powers of taking over land. A War Agricultural Committee can take over considerable tracts of country or an individual farm, or even an individual field. And the committees are being pressed to exercise their powers whenever this pressure will lead to more food production. Land will be allocated by the committees for specific forms of production and Mr. Hudson said that they would say to the farmer, "You will grow a certain crop."

Progress in some ways, apart from the great increase in ploughed land, has already been great. In June of 1939 we had 53,000 tractors in the country. Now we have 18,000 more and they are steadily increasing and the implements to be used with them also. But with all this there has been a loss of labour from the land—met to some extent by the drastic step of refusing agricultural workers permission to leave that work for another.

Drastic power in agriculture and in other productive industries are balanced by new forms of power in the judicial field. The new Emergency Powers Bill enables civil courts to be set up in the different regional areas of Great Britain so that in time of emergency these special courts can function when the only alternative would be martial law. But these changes in our British methods have caused numbers of Members of Parliament to realise that they must be more than ever on the alert to safeguard our rights and our liberties, however they may be temporarily curtailed. A strongly backed movement exists to create regional committees of Members of Parliament to coöperate with the organisation of the regions into which Great Britain is divided so as to safeguard not only industrial liberties, but the democratic functions of local government.

* * *

Another aspect of the food problem is the extension of rationing which has come upon us and which seems to have been accepted with calm everywhere. To reduce tea to 2 ounces a week per person may mean a great deal in many working-class homes, but can be substituted by coffee or cocoa, although both are imported. These restrictions are certainly only prudence, and taken in view of a war lasting two years longer or more. Also there is certainly a good deal of extra food in the country beyond that in the hands of wholesalers or retailers. In food, as in other things British, including hospital accommodation, there is an elastic private reserve. Very many people responded to the Government's pleas of over a year ago, well before war began, to buy supplies of food, and there are still stores of that kind in private hands.

Mr. Lloyd George spoke in the debate, and did not agree that the diet produced largely from our own land would be an unpalatable diet. It was "the diet on which I was brought up, and which has lasted me for 77 years." He spoke of the virtues of a mixture of barley and wheat baked into bread, and said that the Government were not making enough of milk; he sang the praises of the hot potato, dipped in cold butter milk. Great Britain and Europe are coming back to the diet of the peasant and perhaps in future our civilisation will have to take much more account of the land and be much closer to the simplicities of peasant life than it has in recent years.

In this debate there was a glimpse in the House of a civilisation simple and clean, if rather hard, and a civilisation of enough, but not one larded with money and smoking with costly baked meats.

FROM THE PRESS GALLERY

Our War-Time Dietary

IN the House of Commons on July 11, Mr. R. S. HUDSON, Minister of Agriculture, said that we now had adequate supplies of food in this country, and also a good reserve. But immediate and energetic steps must be taken to ensure that our people would have enough food even if our present import programme had to be seriously curtailed. What was the minimum on which our people could be maintained? The scientists said that our population could live and work hard on a very different diet to that to which they were accustomed, the greater proportion of which could be grown in this country. The task of the Ministry was to inform the agricultural departments exactly what they wished them to produce and what they did not want to be produced.

In the debate that followed Mr. M. P. PRICE urged the Minister to base his price policy on the need to produce from the farm foods which were necessary to keep the country in health in war-time. He thought the country could live for a long time on a diet, say 75% home-pro-

duced, comprising milk, potatoes, vegetables and oatmeal. Such a home-produced diet, combined with a minimum of imported foods, could give us 2000 calories per head per day, and provide vitamins A, B, and C.

Mr. LLOYD GEORGE said that the Government were now coming under the instruction of men who had made a study of the problem of nourishing diets, and it was all to the good that the result of their investigation had been to counsel a return to simple fare. Nothing would do more to restore the health of the country than to put the diet of the peasant on the tables of Mayfair, and also of the workers, who at the present moment were spending their money on things which, although they appeared to be attractive and palatable, were not good for their health.

Mr. K. W. M. PICKTHORN suggested that science should be treated with reserve. Scientists even 25 years ago had not heard of vitamins, and it might be that 25 years hence they might have heard of something else which ought to be in our diet—and which at the moment was not.

Workmen's Compensation

On July 11 Sir JOHN ANDERSON presented the Workmen's Compensation (Supplementary Allowances) (No. 2) Bill, which replaces the bill which was in progress through Parliament before the new Government came into office. It proposes to give more generous supplementary allowances to injured workmen. The first bill provided that in cases of total incapacity a married workman should receive a supplementary allowance of 5*s*. in respect of his wife, and 3*s*. a week in respect of each legitimate child. No supplementary allowances were to be paid to single workmen or to women. The new bill provides that in cases of total incapacity a supplementary allowance of 5*s*. a week shall be paid to any injured person entitled to workmen's compensation, whether male or female; that a married workman shall be entitled to supplementary allowances of 4*s*. a week for the first two children under 15, and 3*s*. a week for any additional children under that age. Compensation and the new allowances together must not exceed seven-eighths of the injured persons average weekly earnings before the accident. The allowances will be reduced proportionately in cases of partial incapacity. A new provision is that supplementary allowances may be paid in respect of an illegitimate child (born not later than nine months after the accident giving rise to compensation), a stepchild and an adopted child. The former bill was to have operated from July 1. Benefits under the new bill will not become payable until Aug. 19.

QUESTION TIME

Communal Feeding and Nursery Centres

In answer to a question Miss F. HORSBRUGH said: Twelve nurseries are to be set up in Lancashire, three being already at work. Eight are being establisehd in the midland region and four more are under consideration. In addition to these twenty-four nurseries, proposals are being considered for the provision of a considerable further number of nurseries in various parts of the country.

Blind Persons and Old-age Pensions

Mr. M. MACDONALD, Minister of Health, informed Mr. PETHICK-LAWRENCE that blind persons were expressly excluded from the scope of part II of the Old Age and Widows' Pensions Act 1940, and were not therefore eligible for supplementary pension. The responsibility for assisting such persons rested with the local authority under the Blind Persons Acts. A person who was in receipt of a supplementary pension and then became blind automatically came under the Blind Persons Act and the responsibility for his or her maintenance then fell on the local authority. Care would be taken to see that there was no interval between the receipt of his or her payment by way of supplementary pension and the receipt of payment from the other authority.

Confinements During Air-raids

In the course of a reply Miss HORSBRUGH said: The minister is advised that it would be most undesirable for facilities to be provided for untrained persons to attend confinements for purposes of instruction. Such persons might regard themselves as competent to deal with situations which demand professional attention and be led to take measures which might be not only harmful, but actually dangerous to life.

Medical News

Royal College of Surgeons of England

A quarterly meeting of the council was held on July 12 with Mr. Hugh Lett, the president, in the chair. Mr. Lett was re-elected president and Sir James Walton and Sir Alfred Webb-Johnson were elected vice-presidents for the ensuing year. Sir Alfred Webb-Johnson and Surgeon Rear-Admiral G. Gordon-Taylor were re-admitted and Mr. V. Zachary Cope and Mr. Harry Platt were admitted to the council. The Hallett prize, Examination for the Fellowship, was awarded to Miss Audrey Smith (King's College). The eleventh Macloghlin scholarship was awarded to H. A. Lane of Rutlish School and Brighton Technical College.

The following were elected for the ensuing year:—

Hunterian professors.—Mr. L. E. C. Norbury, carcinoma of the rectum; Prof. H. A. Harris, anatomy and physiology in relation to pædiatrics and orthopædics; Mr. N. L. Capener, anatomy, mechanics and surgery of the lumbosacral region; Dr. R. E. Smith, undescended testicle; Mr. H. A. Brittain, principles of arthrodesia; Mr. J. M. Yoffey, flow of lymph from the nasopharynx and the absorption of dyes, proteins, viruses, and bacteria; Mr. W. H. G. Jessop, surgery of the great omentum; Mr. F. R. Edwards, dried plasma; Mr. F. F. Rundle, the pathogenesis of thyrotoxicosis; and Mr. A. J. Helfet, calcification and decalcification of bone.

Arris and Gale Lecturers: Colonel John Beattie and Dr. A. J. E. Cave. *Erasmus Wilson Demonstrators:* Mr. Robert Davies-Colley; Mr. C. E. Shattock, and Surgeon Rear-Admiral C. P. G. Wakeley.

Arnott Demonstrator: Dr. Cave.

Sir Frank Colyer was reappointed hon. curator of the odontological collection, and Mr. C. J. S. Thompson, hon. curator of the historical collection.

It was decided that British subjects holding either the diploma of Chirugien-Dentiste of France, or of Medecin-Dentiste of Zürich University, and who produce evidence of not less than ten years' dental practice, and six months' recognised general and dental hospital practice in this country, be admissible to the final examination for the licence in dental surgery.

Diplomas of fellowship were granted to A. B. Birt (St. Thos.) and P. R. Wheatley (Guy's).

The following diplomas were granted, jointly with the Royal College of Physicians:

D.P.H.—T. A. Cockburn, T. P. Evans, Hilary S. M. Hadaway, Matthew Hunter, Elizabeth M. James, J. D. O'Riordan, and D. W. G. Smith.

D.P.M.—R. C. Abel, E. C. Allibone, D. E. W. Anderson, W. L. Carruthers, E. P. H. Charlton, J. M. Crawford, E. B. Davies, Nathan Dembovitz, W. N. O. George, K. A. Graf, C. E. Greenwood, Frank Kane, A. D. Latham, A. P. R. Lewis, A. F. McGlashan, M. N. Pai, J. C. Penton, W. L. L. Rees, Kathleen M. Webster, and Joseph Whitby.

D.L.O.—Florence Cavanagh, Satijiban Chatterjee, H. R. Cline, I. G. de Zilva, C. F. Evans, Mohammed Fatin, C. D. Holdstock, F. B. Korkis, Sundram Pillai, and J. L. Reid.

University of Dublin

At recent examinations at the school of physic, Trinity College, the following were successful:

M.D.

G. W. M. Elliott, and Robert Nelson.

FINAL EXAMINATION FOR M.B., B.CH., AND B.A.O.

Medicine.—D. W. Montgomery, E. C. J. Millar, C. P. Clancy-Gore, W. E. O'C. C. Powell, Lois J. Macaulay, M. A. Majekodunmi, G. H. Blennerhassett, F. G. M. Ross, and William Houston (with second-class honours); J. T. Hanna, H. K. Bourns, Edna G. Merrick, John Nash, M. D. Leitch, J. M. Taylor, Caroline A. McEvett, L. T. Kelly, S. D. Reid, A. E. Tinkler, Wilbur Badner, John Moore, D. S. M. Enraght-Moony, Isabel M. Woodhouse, D. O. Hicks, R. St. C. Mooney, Louis Solomon, Margaret Sutcliffe, L. C. Jacobson, G. W. E. Little, J. D. Dennehy, Kathleen M. Patterson, R. W. Carey, S. O. O. Franklin, Margaret L. Campbell, E. G. W. Lynch, N. M. Smith, Henry FitzGibbon, Gilbert Tattersall, E. P. Hill, Myer Steinberg, J. C. Watson, and H. T. Hutchinson.

Surgery.—W. E. O'C. C. Powell, and D. W. Montgomery, (with first-class honours); H. K. Bourns, Alicia G. Pike, E. C. J. Millar, and C. P. Clancy-Gore (with second-class honours); Yvonne O. Mallet, L. Solomon, D. L. Harbinson, R. St. C. Mooney, S. D. Reid, William Houston, Isabel M. Woodhouse, S. F. H. Haughton, M. D. Leitch, J. I. Stafford, W. F. Rogers, F. G. M. Ross, J. M. Taylor, K. T. Acton, J. D. Dennehy, D. S. M. Enraght-Moony, A. E. Tinkler, J. R. C. Holmes, L. T. Kelly, John Nash, R. J. Balfe, Olga Bloom, E. P. Hill, John Moore, S. O. O. Franklin, E. G. R. Butler, Margaret L. Campbell, G. W. E. Little, Margaret Sutcliffe, J. H. Acton, J. M. Slattery, and Phoebina Eakins.

Midwifery.—Wilbur Badner, John Thomas Hanna, Isadore Shribman, Yvonne Olive Mallet, John Patrick Condon, Simon Smullen, Olga Bloom, Hugh Ben Craig Houston, Charles Desmond MacCarthy, Walter John Thompson, Irving Theodore Wolpe, Edward Gerald Robert Butler, and Marvin Polansky.

D.G.O.

A. El S. el Minabbawy and Nathaniel Hirschman.

D.P.H.

Part I.—Leila V. Finegan.
Part II.—O. F. Warner, C. F. O'Reilly, P. A. McNally, P. J. Mullaney, D. K. Sundaresan, and C. G. Reilly.

D.P.M.

Part I.—C. B. Robinson.

University of Aberdeen

On July 11 the following degrees and diploma were conferred:

M.D.—R. F. Macdonald (with honours) and A. I. Cheyne (with commendation).

M.B., Ch.B.—B. H. Smith (with first-class honours); Jane I. Davidson and E. G. Hardy (with second-class honours); C. J. B. Anderson, Wardlaw Anderson, R. M. Bernard, C. A. Birks, S. M. W. Bodie, William Bowman, J. R. Boyd, Marie I. Caldwell, Sydney Catterall, A. C. Clay, D. C. Coull, Mora J. Craig, Alexander Crichton, G. G. Donaldson, Peter Duncan, Joseph Dunne, C. G. Elder, K. B. Fraser, F. C. Garrow, M. J. Glen-Campbell, J. S. Glennie, Jean I. Gordon, E. M. Innes, J. R. S. Innes, Wallace Ironside, R. M. S. Keir, R. B. Killoh, A. W. C. Lobban, J. D. G. Macdonald, G. L. McEwan, Alice Mackenzie, Isabel E. MacKenzie, D. A. H. McNaught, John Macpherson, A. D. Macrae, R. R. Maitland, Annie M. Mee, C. Michie, Cecilia D. Middleton, D. M. Milne, G. P. Mitchell, J. S. C. Monro, A. F. Niven, Andrew Noble, P. H. Peterson, P. V. Pucci, L. W. Ritchie, D. F. Ross, M. G. Scott, N. C. Sharp, John Sleigh, W. R. Stephen, Jean E. Stuart, G. H. C. Taylor, J. W. Taylor, W. R. Thomson, Leslie Watt, G. L. Were, and J. B. Woolley.

D.P.H.—J. W. Pickles.

Royal Society of Medicine

The following have been elected honorary fellows of the Society: Dr. Mervyn Gordon, F.R.S., Sir Leonard Rogers, F.R.S., Mr. C. H. Usher, Dr. Louis Martin (Paris), Prof. Felix Nager (Zurich), Prof. G. Roussy (Paris), and Dr. Ralph Pemberton (U.S.A.)

A special meeting of the section of surgery will be held on Tuesday, July 30, at 5 p.m., when Sir Arthur Hurst will give a paper on hysterical contractures resulting from war injuries.

Heberden Medal

The Heberden medal for 1939 has been awarded to Major W. S. C. Copeman, for his paper on treatment of the rheumatic diseases in the B.E.F.

Caledonian Medical Journal

The council of the Caledonian Medical Society has regretfully decided to suspend publication of this journal for the duration of the war.

Postgraduate Lectures at Edinburgh

During the summer seven weekly lectures will be given at the Royal Infirmary under the auspices of the Honyman Gillespie trust. Sir Norman Walker will give the first lecture at 4.30 p.m. on Thursday, July 25, when he will speak on war and skin diseases. Other lecturers will be: Prof. F. A. E. Crew, F.R.S. (contributions of genetics to reconstructive medicine); Prof. J. P. Kendall, F.R.S. (gas warfare); Prof. W. C. Wilson (lethal factors in burns); Dr. John Gillies (modern anæsthesia); Mr. Norman Dott (scope and organisation of neurological surgery in war-time); Colonel D. S. Middleton (the work of a regimental medical officer). The lectures will be open to all graduates and senior students.

Army Convalescent Homes

The Ministry of Health, in agreement with the War Office, has asked the British Red Cross and the Order of St. John to provide and equip convalescent homes for non-commissioned officers and other ranks of the Army. The immediate aim is to provide 10,000 beds, each home accommodating between 50 and 100 beds. Private houses will be adapted and equipped in various parts of England and Wales, and a number have already been offered by their owners. The work of opening and maintaining the homes will be carried out by the joint county committees of the Red Cross and St. John war organisation. Arrangements for convalescent hospitals for officers have been made with this organisation by the War Office.

Ling Physical Education Association

This society has appointed a panel of experts including educational and medical authorities to draw up pamphlets on a modern approach to the teaching of hygiene and a syllabus for senior girls.

Sudden Births in Air-raid Shelters

The Minister of Health has authorised a sessional fee of one and a half guineas to doctors for attendance on women in labour in public air-raid shelters. A midwife will be entitled to a fee of one guinea.

Mrs. Oliver Strachey

Mrs. Oliver Strachey, who died on July 16, worked all her life to gain for women equal opportunities with men. Between 1930 and 1932 she was a member of *The Lancet* Commission on Nursing, convened under the chairmanship of the late Earl of Crawford and Balcarres. Her wide knowledge of the position of women in the profession made her a valuable adviser, and her sympathetic and balanced judgment gave her opinion weight. The final report of the Commission owed many constructive suggestions to her.

Appointments

ANDERSON, M. E., M.B. St. And., M.R.C.O.G., assistant medical officer (maternity and child welfare) for Hammersmith.
BIRNIE, C. R., M.D. Lond., M.R.C.P., D.P.H., temporary deputy medical superintendent at Friern Hospital.
BURKITT, D. P., M.B. Dubl., F.R.C.S.E., resident surgical officer (B1) at Beckett Hospital, Barnsley.
BUTTERS, A. G., F.R.C.S.E., resident surgical officer at the Royal Hospital, Sheffield (reappointment).
CAMERON, D. H. W., M.B. Glasg., senior resident medical officer at an emergency hospital.
CLARK, A. R., M.B. Lond., F.R.C.S., temporary first assistant in the department of surgery, British Postgraduate Medical School, London.
EMBLIN, J. N. I., M.B. Edin., F.R.C.S.E., deputy medical superintendent at Halifax General Hospital.
EVANS, D. B., M.R.C.S., medical referee under the Workmen's Compensation Act, 1925, for Wrexham (Circuit No. 29).
HOARE, H. G. W., M.B. Camb., F.R.C.S.E., resident surgical officer at Mansfield and District General Hospital.
IRVING, William, M.D. Camb., junior resident medical officer at an emergency hospital.
MCCORD, W. J., M.D. Manitoba, registrar and obstetrical tutor at the Jessop Hospital for Women, Sheffield.
PIACHAUD, R. A., M.R.C.S., resident medical officer (B1) at a base hospital, East Riding of Yorkshire.
ROBERTS, LLYWELYN, M.D. Lond., D.P.H., medical officer of health and school medical officer for Swindon.
SAMUEL, R. G., M.R.C.S., temporary assistant medical officer of health (A.R.P.) for Edmonton.
SCOTT, Alexander, M.B. St. And., medical superintendent at Wooley Sanatorium.
SEDDON, ALLAN, M.D. Lpool, F.R.C.S., temporary medical superintendent at Coventry Municipal General Hospital.
WARREN, PATRICIA S., M.B. Edin., D.P.H., assistant medical officer of health and assistant school medical officer for Cannock.
ZANE, MAVIS V., M.B. Sydney, resident medical officer at Princess Elizabeth of York Hospital for Children, London.

Births, Marriages and Deaths

BIRTHS

BEET.—On July 1, at Lusaka, Northern Rhodesia, the wife of Dr. Eric A. Beet—a daughter.
BERRY.—On July 10, at Zomba, Nyasaland, the wife of Dr. W. T. C. Berry—a son.
BOWERBANK.—On July 14, at Sutton, the wife of Dr. A. G. Bowerbank—a daughter.
COURT.—On July 9, at Birmingham, the wife of Dr. Donald Court—a son.
EVANS.—On July 12, to Dr. Barbara Evans, wife of Dr. Philip Evans, of Ansty, Cuckfield, Sussex—a son.
HARRIS.—On July 7, the wife of Major T. A. B. Harris, R.A.M.C.—a son.
KERSHAW.—On July 3, at Orpington, the wife of Dr. Robert Kershaw—a son.
MCFARLANE.—On July 9, the wife of Dr. Graeme J. McFarlane, Ringwood, Hants—a daughter.
ROBB—On May 21, at Auckland, New Zealand, the wife of Mr. Douglas Robb, F.R.C.S.—a son.
SIMMONDS.—On July 12, at Edgware, the wife of Dr. F. A. H. Simmonds—a daughter.
WARING.—On July 8, 1940, at Luton, the wife of Dr. John Waring—a daughter.

MARRIAGES

BROADBRIDGE—MILTON.—On July 16, at Barking-by-the-Tower, Harold G. Broadbridge, M.B., to Nora Margery, younger daughter of Dr. William T. Milton, of Eltham.
GLENNIE—ROSS.—On July 13, in London, Henry H. I. Glennie, M.B., Aberdeen, to Elizabeth M. A. Ross, of Dunedin, New Zealand.
HYSLOP—ILIFF.—On July 15, at Settle, Yorkshire, David B. Hyslop, M.B., to Beatrice W. Iliff.

DEATHS

DAVIES.—In July, killed on active service, Ivor Rees Davies, M.B., Lond., Lieutenant R.A.M.C., eldest son of Dr. H. R. Davies, Whyteleafe, Surrey, aged 25.
FAIRBAIRN.—On July 14, in London, Sydney Herbert Fairbairn, D.C.M., M.D. Camb., in his 68th year.
HANDSON.—On July 14, at Willingdon, Sussex, Lionel Handson, M.B. Lond.
MURRAY.—On July 14, at Cheltenham, Robert William Murray, O.B.E., F.R.C.S.
SEDGWICK.—On July 10, Hubert Redmayne Sedgwick, M.B. Camb., Winchester.

Notes, Comments and Abstracts

SHARED SERVICE

A MEETING of the Paddington Medical Society on July 16 passed a resolution that the retaining of a limited number of doctors to examine recruits had led to pronounced inequalities in the amount of available work and income in the profession, and caused unnecessary hardship to many practitioners who had been excluded. They urged the Ministry of Labour to extend the rota of doctors, so as to make the work immediately available to all registered practitioners who applied to serve on the medical boards.

In sponsoring this resolution Dr. Saul Crown pointed out that doctors in evacuated areas undoubtedly experienced hardship from the emigration of their patients, and many were even finding difficulty in paying their rates and carrying on at all, while others in the same area had been fortunate enough to be appointed to medical boards and were attending perhaps two a day, thus being in comfortable circumstances. Appointment to the boards he felt was arbitrary, and seemed to depend on the whim of someone in the Ministry of Labour. He thought the profession should be conscripted, not only to correct inequalities of the kind, but in order to make possible rapid transfer of doctors from place to place as they were needed. Mr. W. McAdam Eccles and the chairman, Dr. G. de Swiet, both insisted that the machinery for the appointment of doctors already existed in the local medical war committees, but it was evident from the remarks of several speakers that, even so, the wheels were not going round smoothly and evenly. Perhaps the most impartial argument came from the secretary, Dr. Z. Green, who said that members of the society were always asking him how they could obtain work on the boards, and that more than one had exclaimed, "Never mind about the pay—I want to do something." Sir Ernest Graham Little deprecated any emphasis on payment at the present time, but described how hardship to E.M.S. consultants had been eased by paying them a retaining fee of £500 a year, for which they gave some service, and allowing them to carry on with private practice while the lull still lasted. Sir Francis Fremantle explained that we must be ready for action at any moment, and we could hardly begin reorganising the whole scheme or even changing the emphasis very much until we saw how it worked in action. Nevertheless, in answer to a question, he said that opinion in the Central Medical War Committee was moving in the direction of the conscription of doctors, that the Government had the plan in contemplation and that he thought at any rate a considerable measure of conscription was likely.

INSTRUMENTS AND THE PURCHASE TAX

Last week (p. 49) we suggested some amendments to the Purchase Tax Bill which would make it easier to implement the parliamentary draughtsman's apparent intention to exclude dispensed medicine from the tax. Now the Surgical Instrument Manufacturers' Association tell us they would like to see dental and dissecting instruments and appliances added to medical and surgical instruments, which are to be exempted from the tax. False teeth are not supplied under the National Health Insurance scheme and though approved societies give some help in buying them there are people even now who are unable to find the balance of the cost. The association suggest that if the price of dentures is further increased it will be equivalent to a tax on food—which is expressly exempt in the bill—for many will be unable to afford the teeth with which to eat their food. The association propose that exemption should be limited to appliances "supplied to the prescription of a registered medical practitioner or dentist."

THE NEED FOR MIDWIVES

THE diversion of many doctors and nurses to war service has placed an additional strain on the midwife, and if an adequate supply of entrants to the profession is to be ensured the number of pupil-midwives who proceed to a second period of training must be increased by between 300 and 400 a year. Sir Comyns Berkeley, chairman of the Central Midwives Board, has written to matrons of institutions approved for the first training period appealing that each should make it her aim that at least 50% of her pupils go on to a second-period training-school. In many schools this aim has already been achieved and there are several where over 90% of the pupils have entered second-period schools. The board consider that if any state-registered nurse intends ultimately to practise as a midwife she should be advised, in the national as well as in her own interest, not to postpone her training as a midwife until after the war but to begin at once.

SQUILL

THIS country has been dependent upon Italy for most of its supplies of squill; in recent years the only other source has been Malta. The bulb of *Urginea scilla* grown in Sicily is preferred by manufacturers of galenical preparations, and although the Maltese product is much less costly the quantities imported in normal times are comparatively small; an exception to this rule was seen during the Italo-Abyssinian war, when owing to the sanctions against Italy there was an unusual demand for Maltese squill. At the present time both sources are closed to this country and as only very small stocks remain over from the imports of bulbs collected last year strict economy will be necessary in prescribing the oxymel, tincture, syrup and vinegar of squill; for, so far as can be foreseen, the new crop of bulbs due for collection in a few weeks will not be available for export to this country. It is not improbable that the export of squill from India will be revived as a consequence of the absence of supplies from the usual sources; at one time Indian squill was a regular commodity of the London drug market. The bulbs have the same botanical origin but as imported were of unattractive appearance and of a muddy colour which compared disadvantageously with the fine white bulbs of Sicily. If, as is said to be the case, the principles to which squill owes its therapeutic virtues are contained in the Indian product its appearance might be excused during a period of emergency.

NEW PREPARATIONS

CARBACHOL B.D.H. is carbamylcholine chloride. The makers, British Drug Houses Ltd., state that it is resistant not only to choline-esterase but also to digestive enzymes and is effective when administered orally as a stimulant of the parasympathetic nervous system in certain cases of deficient muscular activity. It is available in tablets and in ampoules.

LEPTAZOL is the name given by the British Pharmacopœia Commission to pentamethylenetetrazol, which is used as a cardiovascular and respiratory stimulant and as convulsant in the treatment of schizophrenia. Formerly a German proprietary preparation, British Drug Houses Ltd. have now put it on the market as a powder, in ampoules and in a 10% solution for oral administration.

During 1939 King Edward's Hospital Fund for London distributed to hospitals and convalescent homes a sum of £308,000, an increase of nearly £4000 over 1938. Special grants were also made, reaching a total of over £73,000. A preliminary estimate of the finance of London hospitals for last year shows their approximate income as £4,460,000 and their expenditure as £4,480,000. This was a decrease in income of about £223,000 and in expenditure of about £350,000 since 1938. Thus despite the drop in income the lower expenditure reduced their deficit to about £20,000 as against £147,000 in 1938. Last year, before the outbreak of war, the emergency bed service had secured 7000 prompt admissions to voluntary hospitals, bringing the total since its foundation to about 10,000.

In his speech at the annual meeting of the fund on July 12, Mr. Malcolm MacDonald said that if the hospitals are to perform their maximum service to the nation in war there must be a thorough coördination between the efforts of different hospitals, different groups of hospitals and different categories of hospitals. He emphasised the part that the fund has played and can play in ensuring such coöperation.

NEO-NATAL HAEMORRHAGE and OBSTRUCTIVE JAUNDICE

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The tendency to haemorrhage in obstructive jaundice is due to the prolonged blood-clotting time which in turn is caused by a prothrombin level much below normal. Recent investigation makes it clear that a similar deficiency occurs in neo-natal haemorrhage. In the treatment of such conditions, Kapilon vitamin K analogues are specific. Kapilon is available in 3 forms, for oral administration and for intramuscular injection. In Kapilon tablets and liquid, methyl naphthoquinone (as used in Kapilon ampoules), has been replaced by the diacetyl derivative of the corresponding quinol (hydroquinone). It has been found that this compound possesses the same therapeutic activity as the quinone.

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For neo-natal haemorrhage, where there is no interference with fat-absorption, many practitioners prefer the oral route. For the prophylaxis of neo-natal haemorrhage, the tablets may be given to the mother, ante-partum. For the infant the liquid should be given, either prophylactically or curatively. In neither case is it necessary to give bile salts.

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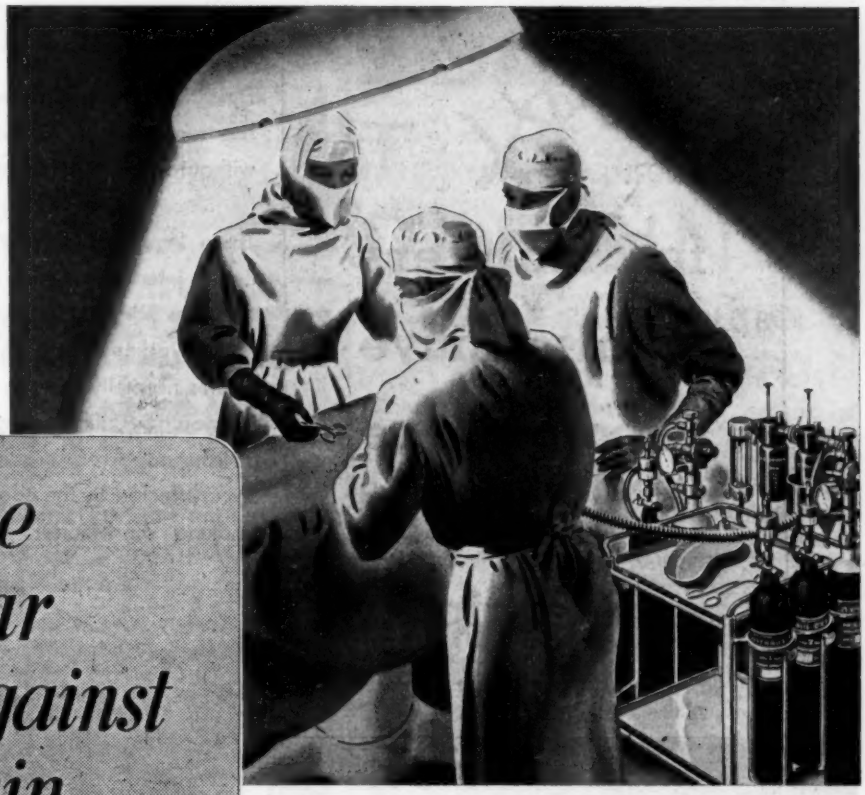

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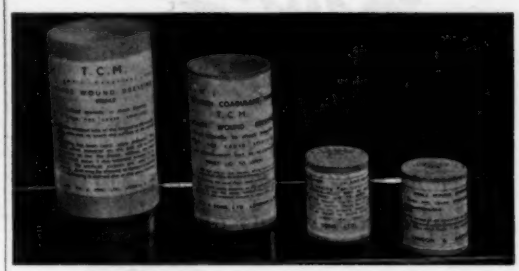

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A PRIVATE HOME for the treatment of gentlemen suffering from Mental and Nervous illness, including the allied Disorders of Alcoholism and the Drug Habit. All types of early Mental and Nervous Cases are received without Certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930. Bracing hill country. See "Medical Directory," p. 2358.—Apply to the Medical Superintendent. 'Phone 10 P.O., Church Stretton.

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CHURCH STRETTON, SHROPSHIRE.

Private Home for Ladies mentally ill. Voluntary and Temporary Patients received.

Medical Superintendent: Dr. J. A. MCCLINTOCK.

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A PRIVATE HOME for the treatment of Nervous and Mental Disorders in both sexes. Situated in nine acres of Pleasure Grounds.

Voluntary, Temporary, and Certified Patients received.

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An Ointment containing the principal constituents of Birch Tar combined with the Oleates of Zinc and Bismuth, etc.

It has proved most efficacious in allaying various forms of inflammation and eruptions of the Epidermis, and is an excellent application for Eczema, Psoriasis, Acne, etc.

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BRITISH POSTGRADUATE MEDICAL SCHOOL

(UNIVERSITY OF LONDON)

WAR SURGERY OF THE NERVOUS SYSTEM. 22nd–26th July, 1940.

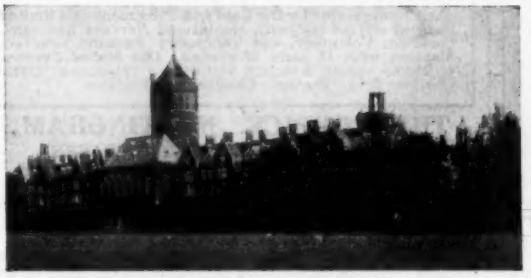
MONDAY, 22ND JULY.		
10 a.m.	The Surgical Anatomy of the Skull and Brain.	Mr. G. C. Knight, M.B., B.S., F.R.C.S.
	The Pathological Consequences of War Wounds of the Skull and Brain.	Mr. Geoffrey Jefferson, M.S., F.R.C.S.
2 p.m.	(At the Royal College of Surgeons.) Demonstration of Specimens Illustrating War Surgery of the Nervous System.	Mr. G. C. Knight, M.B., B.S., F.R.C.S.
TUESDAY, 23RD JULY.		
10 a.m.	The Treatment of War Wounds of the Skull and Brain.	Mr. Geoffrey Jefferson, M.S., F.R.C.S.
2 p.m.	Demonstration on the Cadaver of Operations on the Skull and Brain.	Mr. A. K. Henry, M.Ch., F.R.C.S.
WEDNESDAY, 24TH JULY.		
10 a.m.	The Sequelæ of Wounds of Skull and Brain.	Mr. G. C. Knight, M.B., B.S., F.R.C.S.
	The Use of X-rays in the Diagnosis of Head Injuries.	Dr. J. Duncan White, M.B., Ch.B., D.M.R.E.
2 p.m.	The Care of the Bladder in Injuries of the Nervous System.	Sir Alfred Webb-Johnson, C.B.E., D.S.O., F.R.C.S., F.R.A.C.S., F.A.C.S.
	Mental Disorders following Head Injuries.	Dr. C. Worster-Drought, M.D., F.R.C.P.
THURSDAY, 25TH JULY.		
10 a.m.	War Injuries of the Spinal Column.	Prof. Lambert Rogers, F.R.C.S., F.A.C.S., F.R.A.C.S.
	Some Sequelæ of War Wounds of the Skull and Spine.	Group Capt. C. P. Symonds, M.D., F.R.C.P.
1.30 p.m.	X-rays in War Injuries of the Spine.	Dr. J. Duncan White, M.B., Ch.B., D.M.R.E.
	The Surgery of War Injuries of the Spine (*Contd.*).	Prof. Lambert Rogers, F.R.C.S., F.A.C.S., F.R.A.C.S.
	War Wounds of the Peripheral Nerves and Their Treatment.	Prof. Hugh Cairns, M.A., D.M., F.R.C.S.
FRIDAY, 26TH JULY.		
10 a.m.	The Investigation of Peripheral Nerve Lesions.	Dr. N. S. Alcock, M.B., Ch.B., M.R.C.P.
	The Late Results of Peripheral Nerve Injuries, with Their Treatment.	Mr. H. Platt, M.S., F.R.C.S.
1.30 p.m.	Demonstration on the Cadaver of Operations on the Spine.	Mr. A. K. Henry, M.Ch., F.R.C.S.
	The Possibilities of Nerve Grafting	Mr. F. H. Bentley, F.R.C.S.
	Hysterical Disorders following War Wounds of the Nervous System.	Dr. J. Purdon Martin, M.D., F.R.C.P.

The fee for the Course will be £1 1s., but no fee will be charged in the case of Officers of the Armed Forces who submit a leave certificate and register their names before the commencement of the Course. Applications for tickets should be addressed to the Dean, British Postgraduate Medical School, Ducane Road, W.12. Further Courses of War Surgery will commence as follows:—War Surgery of the Abdomen and Pelvis: Monday August 5th, 1940. War Surgery of the Extremities: Monday, August 19th, 1940. Operative Surgery in Wartime, including Cadaver Surgery: Tuesday, August 27th, 1940.

Stations: Wood Lane (Central London Railway), Ladbroke Grove (Metropolitan Railway) and No. 7 (Acton Vale) Bus.

Buses: No. 7 (Acton Vale), Nos. 72 and 105 to Bloemfontein Road, Westway. **Trolley-buses:** Nos. 628 and 630.

HOLLOWAY SANATORIUM VIRGINIA WATER



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This Institution is situated in a beautiful and healthy locality within easy reach of London. It is fitted with every comfort. Patients can have Private Bedrooms and Special Nurses as well as the use of General Sitting Rooms, at moderate rates of payment. Voluntary Patients can be admitted.

There is a Branch Establishment at CANFORD CLIFFS, BOURNEMOUTH, where Patients can be sent for a change and be provided with all the comforts of a well-appointed home.

For Terms, apply to—

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Special Nurses for Nerve and Mental Cases.

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Also Fully Trained Nurses for
MEDICAL, SURGICAL,
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'Phone: "WELBECK 6066"

MALE & FEMALE TRAINED THE TEMPERANCE NURSES CO-OPERATION
ESTABLISHED AT THIS ADDRESS 43 YEARS

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all Cases, Male, Female, & Children
MATERNITY, FEVER, etc.
H. S. STURGESS, Secy.
'Grams: "ABSTAIN, LONDON"

Telephone: WELbeck 2728 Telegrams: "ASSISTIAMO, LONDON"
For MEDICAL, SURGICAL, and
MENTAL NURSES
Male or Female
THE NURSES' ASSOCIATION
In conjunction with the MALE NURSES' ASSN.
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Mrs. MILLICENT HICKS, *Superintendent* W. J. HICKS, *Secretary*

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For LADIES and GENTLEMEN of Unsound Mind.
Terms moderate. Apply to Resident Medical Superintendent. Telegrams: ADAM WEST MALLING. Telephone No. 2: MALLING.

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Once again your patients can be recommended to London's most modern and perfectly equipped Nursing Home. At the outbreak of War the Clinic was temporarily closed down, but is now re-opened complete with air raid shelter and ventilated blackout. Patients—admitted only under the care of their own physician or surgeon—are offered the finest attention that modern methods and up-to-date equipment can give.

Fees 10 Gns. to 18 Gns. per week (Average 14 Gns.). Specially equipped Operating Theatres available. Only State Registered Nurses employed. Rooms may be reserved now by application to the Matron: Miss J. Jacomb, S.R.N., S.C.M.

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Telephone: WELbeck 4444

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FARMING and OPEN AIR OCCUPATION for PATIENTS

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FEES:
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Near DARTFORD, KENT.
Ladies and Gentlemen received for treatment under certificates, and without certificates as either VOLUNTARY or TEMPORARY PATIENTS, at a weekly fee of £2 9s., and upwards.

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PRIVATE MENTAL HOME for Nervous and Mental illness. All forms of treatment available. Fees from 4 gns. per week upwards, according to requirements. Vacancies occasionally exist at reduced fees on the recommendation of the patient's own physician.
Apply to Dr. J. A. SMALL. Telephone: Norwich 80.

FENSTANTON, at "FIVE DIAMONDS," Chalfont St. Giles, Bucks.
A Private Home for the Care and Treatment of a limited number of LADIES with Mental and Nervous Disorders. Certified, Voluntary, and Temporary Patients received. Mansion with 12 acres of ground. (*See Medical Directory*, p. 2346.) Apply Resident Physician. Telephone: Little Chalfont 2048. Station: Chalfont and Latimer.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.
President: The Right Hon. LORD BELPER.

This Institution is exclusively for the reception of a limited number of PRIVATE PATIENTS of both sexes, of the UPPER and MIDDLE CLASSES, at moderate rates of payment. It is beautifully situated in its own grounds, on an eminence a short distance from Nottingham, and commands an extensive view of the surrounding country; and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary and Temporary Patients received. Occupational Therapy. For terms, &c., apply to the Medical Superintendent.
Telephone: 64117 Nottingham.

ST. ANDREW'S HOSPITAL

FOR NERVOUS AND MENTAL DISORDERS,

NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY.

PRESIDENT: THE MOST HON. THE MARQUESS OF EXETER, K.G., C.M.G., A.D.C.

MEDICAL SUPERINTENDENT: THOMAS TENNENT, M.D., M.R.C.P., D.P.H., D.P.M.

This Registered Hospital is situated in 130 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble; temporary patients, and certified patients of both sexes are received for treatment. Careful clinical, bio-chemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE

This is a Reception Hospital in detached grounds with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the complete investigation and treatment of Mental and Nervous Disorders by the most modern methods: insulin treatment is available for suitable cases. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombieres treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-Ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High-frequency treatment. It also contains Laboratories for bio-chemical, bacteriological, and pathological research. Psychotherapeutic treatment is employed when indicated.

MOULTON PARK

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupational therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit growing.

BRYN-Y-NEUADD HALL

The seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (TELEPHONE: No. 2356 and 2357 Northampton), who can be seen in London by appointment.

CHEADLE ROYAL HOSPITAL, Cheadle, Cheshire.

This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL AND NERVOUS DISEASES.

The Hospital is governed by a COMMITTEE, appointed by the TRUSTEES of the Manchester Royal Infirmary.

In addition to the Main Buildings there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational Therapy.

VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received.

The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 3½ hours from London.

For terms and further particulars apply to the Medical Superintendent, who may be seen in Manchester BY APPOINTMENT. *Telephone: Gatley* 2231 (3 lines).

CAMBERWELL HOUSE

Telegrams: "PSYCHOLIA, LONDON." **33, PECKHAM RD., LONDON, S.E.5.** Telephone: Rodney 4242 (2 lines).

For the treatment of MENTAL DISORDERS.

Also completely detached Villas for Mild Cases, with private suites if desired. Voluntary Patients received. Twenty acres of Grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, Recreation Hall with Badminton Court, and all indoor amusements, including Wireless and other Concerts, Occupational Therapy, Calisthenics, and Dancing Classes. X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Department. Chapel. **Shock and also modified Insulin Therapy.**

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An Illustrated Prospectus, giving fees which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is Hove Villa, Brighton, and is 200 feet above sea level.

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First opened in 1898 and rebuilt in 1925 on the Cotswold Hills seven miles from Cheltenham, for the Treatment of Pulmonary and all other forms of Tuberculosis. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. SPECIAL TREATMENT by artificial PNEUMOTHORAX (X-ray controlled). TUBERCULINS, and ULTRA-VIOLET RAYS is available when necessary without extra charge. X-RAY plant, Fully Equipped Dental Department, Electric Light Radiators, hot and cold basins and Wireless in all rooms. Up-to-date drainage. Full day & night Nursing Staff. **Terms: 5 to 7½ Guineas a week inclusive.**

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FOR THE TREATMENT OF PULMONARY TUBERCULOSIS

Well situated on high ground and surrounded by pines and heather.
All rooms are fitted with electric light, wash basins with hot and cold water, and radiators.
X ray plant. Day and night nursing staff.

RESIDENT MEDICAL SUPERINTENDENT: **Dr. H. O. BLANFORD, to whom application for admission can be made.**

MUNDESLEY SANATORIUM

has migrated from Norfolk to

VALE ROYAL ABBEY, Winsford, Cheshire

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FOR EARLY AND CONVALESCENT CASES Recreational Therapies are held daily by skilled Leaders

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Telephones—STARCROSS 259 and TEIGNMOUTH 289

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A Private Clinic, the first in Great Britain, for investigation and treatment of all forms of disease, except infectious and mental

There is a steel and concrete Air Raid Shelter with heating and a lift to all floors

Inclusive charges Apply SECRETARY Telephone: Ruthin 66

THE LAW NURSING HOME
ROCHDALE (Lancs)

Founder: The late SIR A. J. LAW, J.P., M.P.

A Private Hospital, exclusively for the treatment of POST-ENCEPHALITIC PARKINSONISM, PARKINSON'S DISEASE and ALLIED DISORDERS

The Nursing Home is governed by Trustees; any surplus is utilized to help patients who cannot afford full fees. Extensive grounds. Hydro. Expert Massage and Physical re-education. Dietary treatment. Equipped with every laboratory apparatus for the investigation and treatment of the diseases. Results of the BULGARIAN TREATMENT published (*Lancet*, 1939, **1**, 693) approx.: 300 patients treated in the last 3 years. Terms moderate. Further particulars apply Medical Superintendent. Tel.: Rochdale 2960.

HAYDOCK LODGE,
NEWTON-LE-WILLOWS, LANCASHIRE.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from Mental and Nervous Disorders, Alcoholism and Drug addiction, either voluntarily, temporarily, or under certificate. Patients are classified in separate buildings according to their mental condition. Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT. *'Phone:* Ashton-in-Makerfield 7311. *Tele. Address:* Street, Ashton-in-Makerfield.

THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and Dairy Produce from own farm. Terms very moderate.

CONVALESCENT HOME AT BOURNEMOUTH Detached Villas standing in 12 acres of ornamental grounds, with tennis courts, etc., which Voluntary, Temporary or Certified Patients may visit by arrangement for long or short period.

Illustrated Brochure on application to the Medical Superintendent. The Old Manor, Salisbury. Telephone: Salisbury 3216 and 3217.

VALE OF CLWYD SANATORIUM

This Sanatorium is established for the treatment of Tuberculosis of the Lungs and the Pleural Cavities. It is situated in the midst of a large area of park-land at a height of 450 feet above sea-level, on the South West slopes of mountains rising to over 1800 feet, which protect it from north and east winds and provide many miles of graduated walks with magnificent views. Average rainfall 29·57 per annum. Full day and night Nursing Staffs. X-Ray plant. Every facility for Artificial Pneumothorax and for operations on the chest. Electric Lighting. Central Heating. Home Farm. Grade A Milk from T.T. Herd.

For particulars apply to Medical Superintendent.

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REDHILL, SURREY

For MENTAL DEFECTIVES of all ages

Training under medical supervision. Schools, Farm, Trade Workshops, Recreations. Fees £110 to £375 p.a. Election by votes of subscribers at reduced terms for necessitous trainable cases.

Apply, Secretary. Tel.: Redhill 344

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GREEN LANES,
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A PRIVATE HOSPITAL for the treatment of mental and nervous illnesses. Conveniently situated and easy of access from all parts. Occupational Therapy, Psychotherapy, and other modern forms of treatment. A.R.P. Shelters.

Telephone: Stamford Hill 2688.

For further particulars apply to the MEDICAL SUPERINTENDENT

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Phone: BEDFORD 3417. **Near BEDFORD**

For Mental Cases with or without Certificates.

Ordinary Terms: Five Guineas per week (including Separate Bedrooms for all suitable cases without extra charge).

For forms of admission, &c., apply to the Resident Physician, CEDRIC W. BOWER.

INTERVIEWS IN LONDON BY APPOINTMENT.

PORTSMOUTH CITY MENTAL HOSPITAL

Accommodation is provided for the reception of PRIVATE PATIENTS of both sexes in three detached Villas, which are healthily and pleasantly situated in extensive grounds with sea views.

Charges from 3 guineas weekly, including all necessaries except clothing.—Apply to the Medical Superintendent and Resident Physician, THOMAS BEATON, O.B.E., M.D., F.R.C.P.

Resident Assistant Medical Officer

(B1) required by MIDDLESEX COUNTY COUNCIL for COUNTY SANATORIUM AND EMERGENCY HOSPITAL, Clare Hall, South Mimms, Barnet, Herts. Registered Medical Practitioners, including suitably qualified R Practitioners holding B2 or B1 Posts, who have held House Appointments. Experience in diagnosis and treatment of tuberculosis. Salary £400 by £25 to £475 per annum. Board, lodging, and laundry. Whole-time duties under Medical Superintendent. Medical examination and one month's notice. For four years only. Post now vacant.

Applications to the undersigned, stating age, nationality, qualifications with dates, experience, and details of previous appointments. No application forms. Relationship to any member or officer of the Council to be disclosed. Copies of three recent testimonials. Canvassing directly or indirectly will disqualify. Closing date 3rd August.

C. W. RADCLIFFE, "B.3," Clerk of the County Council.
Guildhall, Westminster, S.W.1.

London County Council.

Medical Practitioners required for undermentioned positions with general medical or surgical duties in Council's general and special hospitals. Married quarters not available.

TEMPORARY ASSISTANT MEDICAL OFFICERS (CLASS I) (B1)

Salary—£350–£25–£425. Suitably qualified R Practitioners holding B2 or B1 appointments are invited to apply.

TEMPORARY ASSISTANT MEDICAL OFFICERS (CLASS II) (B2)

Salary—£250. R Practitioners who hold A posts may apply. If held by an R Practitioner the appointment will be limited to six months.

All positions are with board, lodging, and washing.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division 2, County Hall, S.E.1, returnable by 5th August.

Canvassing disqualifies.

London County Council.

Registered Medical Practitioners, Male and Female, required as HOUSE SURGEONS/PHYSICIANS (A) in the Council's general and special hospitals, including R Practitioners within six months of qualification. If held by an R Practitioner, appointment limited to six months; otherwise for six-monthly periods to a maximum of two years.

Salary £120, with full residential emoluments.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division 2, County Hall, S.E.1, to be returned forthwith.

Canvassing disqualifies.

London County Council.

TEMPORARY ASSISTANT DISTRICT MEDICAL OFFICERS required for Area VII, District F (West Norwood and part West Dulwich), salary £200 (£250 from 1st October, 1940), and District N (Streatham), salary £160 (£200 from 1st October, 1940).

Must reside in or near district.

Application form with further particulars obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division (1), County Hall, S.E.1, returnable by 3rd August. Canvassing disqualifies.

Middlesex County Council

requires:

(1) RESIDENT CASUALTY OFFICER (B1) for CENTRAL MIDDLESEX COUNTY HOSPITAL, Acton-lane, Willesden, N.W.10. Surgical and good all-round experience and held house appointments. Salary £350 per annum. Duties as required include dealing with casualties and admissions to hospital. Appointment vacant 17th August, 1940.

(2) RESIDENT ASSISTANT MEDICAL OFFICER (Male) (B1) for WEST MIDDLESEX COUNTY HOSPITAL, Twickenham-road, Isleworth, Middlesex. Special experience in children's diseases and held resident appointments in general hospitals. Salary £400–£25–£475 per annum. Duties as Council may direct. Appointment vacant 16th July, 1940.

(3) RESIDENT ASSISTANT MEDICAL OFFICER (B1) for CHASE FARM EMERGENCY HOSPITAL, The Ridgeway, Enfield, Middlesex. General surgical experience as House Surgeon or Resident Surgical Officer. Salary £400–£25–£475 per annum. Duties as Council may direct. Appointment as soon as possible.

(1), (2), and (3) applications from suitably qualified R Practitioners holding B2 or B1 appointments, stating age, nationality, qualifications with dates, experience, details of previous appointments.

(4) RESIDENT OBSTETRIC HOUSE SURGEON (Male or Female) (A) for NORTH MIDDLESEX COUNTY HOSPITAL, Silver-street, Edmonton, N.18. General Hospital of 1300 Beds, with 17,000 admissions yearly; nearly 2000 deliveries per annum. Largely complicated cases; 60 gynæcological beds. Salary £100 per annum. Post approved for R.C.O.G. purposes. Appointment vacant 14th August, 1940. Applications, including R Practitioners within six months of qualification, stating age, qualifications with dates, and nationality.

(1), (2), (3), and (4) board, lodging, and laundry. Whole-time duties under Medical Superintendent. Medical examination and one month's notice. (1) for six months, may be extended for further six months. (2) and (3) four years only. (4) for six months.

No application forms provided. Relationship to any member or officer of Council to be disclosed. Copies of not more than three recent testimonials. Canvassing, directly or indirectly, disqualifies. Closing date 27th July, 1940.

Applications to undersigned.

C. W. RADCLIFFE, "B3," Clerk of the County Council.
Guildhall, Westminster, S.W.1.

Belgrave Hospital for Children,
1, Clapham-road, S.W.9.

The Committee of Management invite applications for the position of SECOND RESIDENT MEDICAL OFFICER (A) which will become vacant on August 1st.

Applicants (Men or Women) must be fully qualified and registered. The appointment is for six months, with board, residence, and laundry provided. Salary at the rate of £100 per annum. The successful candidate would become eligible for a further emolument in the First-Aid Post if willing and able to undertake the duties.

Applications, with copies of testimonials, stating age, should be forwarded as soon as possible to—

THOS. CLAPHAM, Secretary.

The Hostel of St. Luke
(The Clergy Nursing Home)
14, Fitzroy-square, London, W.1.

APPOINTMENT OF RESIDENT MEDICAL OFFICER (B2).

Applications are invited from registered Medical Practitioners (Male) for the appointment of Resident Medical Officer (B2) to become vacant on 1st August, 1940, including R Practitioners who hold A Posts and who have not completed five months' tenure of those posts. If held by an R Practitioner, the appointment will be limited to six months, otherwise it will be for a period of six months and may be renewable for a further period of six months. The salary is at the rate of £200 per annum with full residential emoluments.

Applications, stating age, qualifications, with dates, nationality and present post, and accompanied by copies of three recent testimonials, should be sent to the undersigned not later than 29th July, 1940.

J. A. CAMPBELL, Capt. R.N. Retd., Secretary.

Battersea General Hospital
(85 Beds), London, S.W.11.

Applications are invited for the post of CASUALTY OFFICER (part time—five mornings a week) at a salary of £60 per annum, with lunch. Candidates must be fully qualified and registered and preference will be given to candidates working for a higher Medical or Surgical degree. The appointment is for a period of six months.

Applications, giving full particulars and accompanied with copies of two testimonials, to be sent to the Secretary as early as possible.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

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Over 50 years' experience

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ALL MEDICAL EXAMINATIONS

MEDICAL PROSPECTUS (36 pages),

sent gratis, along with List of Tutors, &c., on application to the Principal, 17, Red Lion-square, London, W.C.1. (Telephone: HOLborn 6313.)

County Borough of West Ham.

PUBLIC HEALTH DEPARTMENT.

APPOINTMENT OF ASSISTANT TUBERCULOSIS OFFICER.

The Council invite applications from qualified Medical Men and Women who have had previous experience in the treatment of tuberculosis for appointment as Assistant Tuberculosis Officer. The officer appointed will be a whole-time officer attached to the Public Health Department and will be required to act under the immediate supervision of the Tuberculosis Officer. The salary for the post is £500 per annum, rising by annual increments of £25 to a maximum of £700 per annum, and fees received must be paid to the Council.

The appointment will be subject to the Council's regulations as made from time to time regarding holidays, sick pay, &c., and to the provisions of the Local Government Superannuation Act, 1937, in connexion with which the successful candidate will be required to pass a medical examination and the statutory contributions will be deducted from the salary.

Forms, upon which application must be made, can be obtained from Dr. E. Ashworth Underwood, Medical Officer of Health, Public Health Department, 85, Romford-road, West Ham, E.15, on receipt of a stamped addressed foolscap envelope, and should be returned to the undersigned not later than 29th July, 1940.

Canvassing members of the Council, either directly or indirectly, is prohibited and will disqualify.

CHARLES E. CRANFIELD, Town Clerk.

Town Hall, West Ham, E.15, 8th July, 1940.

Hounslow Hospital.

Applications are invited from registered Male Practitioners for the appointment of HOUSE PHYSICIAN AND CASUALTY OFFICER (A) to become vacant during August, including R Practitioners within six months of qualification. If held by an R Practitioner appointment will be limited to six months, otherwise reappointment for a further period will be considered. The salary is at the rate of £100 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of three recent testimonials, should be sent to the undersigned not later than 25th July, 1940.

A. MOWBRAY BARKER, Secretary.

Hounslow Hospital, Middlesex.

The Colonial Medical Service.

VACANCIES FOR MEDICAL OFFICERS.

The maintenance of an efficient Colonial Medical Service constitutes a vital part of the national war effort, and it is most important that the Service should be assured of an adequate supply of doctors.

The Secretary of State for the Colonies therefore invites applications from doctors possessing a medical qualification registrable in the United Kingdom who are British subjects and who are under thirty-five years of age.

Medical Officers are appointed in the first instance for general service. But there are ample opportunities for work in special branches of medicine and surgery, in public health, and in medical research.

The normal salary scale is from £600 to between £1000 and £1120. There are large numbers of super-scale posts to which promotion is made on merit and which carry higher salaries.

Government quarters, in many cases free of rent, and first-class passages to and from the Colonies are provided, and an adequate pension scheme is in force.

Selected candidates are normally required to attend a course of instruction in Tropical Medicine and Hygiene either before proceeding overseas or during their first period of leave.

Further particulars, including the regulations governing admission to the Colonial Medical Service, may be obtained from the Director of Recruitment (Colonial Service), 29, Queen Anne's-gate, London, S.W.1.

Physiology.—Male Demonstrator

required in the DEPARTMENT OF PHYSIOLOGY, MIDDLESEX HOSPITAL MEDICAL SCHOOL, W.1.

Applicants must have had training in Experimental Physiology, and teaching experience. Salary £300 per annum.

Applications to the Medical School Secretary, Middlesex Hospital, W.1.

Borough of Ealing.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified Medical Practitioners with a Public Health qualification for the position of Assistant Medical Officer of Health.

A candidate must have had at least three years' experience in the practice of the profession. The person appointed will be required to carry out medical inspection of school-children and child welfare work and perform such other duties as may be allotted as Assistant to the Medical Officer of Health and School Medical Officer.

The person appointed will be required to devote his whole time to the duties, and will not be allowed to engage in private practice. The salary will be at the rate of £600 per annum, rising by £25 per annum to £700.

A deduction of 5% will ibe made from the salary in accordance with the provisions of the Local Government Officers Superannuation Act, 1937, and the appointment will be subject to passing the Council's medical examination in connexion therewith. Canvassing will be a disqualification.

Copies of the application forms and terms of appointment can be obtained from Dr. Thomas Orr, Medical Officer of Health, Town Hall, Ealing, W.5, to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than the 25th July.

R. H. WANKLYN, Town Clerk.

Town Hall, Ealing, W.5, 13th July, 1940.

British Postgraduate Medical School.

(UNIVERSITY OF LONDON.)

There is a vacancy for an ASSISTANT with special experience in Bacteriology in the DEPARTMENT OF PATHOLOGY.

The selected candidate will be required to work in the Bacteriological section under the direction of the Professor of Pathology. His duties will include routine clinical bacteriology, research, and teaching.

The appointment will be for the duration of the war but may be terminated earlier by three months' notice. The salary will be at the rate of £400 per annum. The successful candidate may join the Federated Superannuation System for Universities.

Applications accompanied by copies of testimonials and the names of two referees, should be sent to the Dean, British Postgraduate Medical School, Ducane-road, London, W.12, from whom further particulars may be obtained. They should arrive not later than 16th August, 1940.

Metropolitan Borough of Islington.

TEMPORARY MEDICAL OFFICER (A.R.P.).

Applications are invited for the post of Temporary Medical Officer (Male), to be engaged on specific A.R.P. duties. The duties of the post will be concerned chiefly with the advanced training of A.R.P. personnel and Casualty Service work, and the Medical Officer will be expected to train sub-instructors, assist with competitions, and generally to co-ordinate the training of the Street Casualty Services in accordance with the scheme of the Ministry of Home Security.

The commencing salary will be £600 per annum, and the appointment will be terminable by one month's notice in writing on either side. Previous A.R.P. experience under a local authority or of casualty work in the field is not essential, but would be taken into consideration.

Applications should be made on the prescribed form to be obtained from the undersigned, and should be returned, together with copies of three testimonials, endorsed "A.R.P. Medical Officer," not later than Friday, 2nd August, 1940.

W. ERIC ADAMS, Town Clerk.

Town Hall, Upper-street, N.1, 20th July, 1940.

Applications are invited from registered

Medical Practitioners (Male) for the appointment of JUNIOR RESIDENT MEDICAL OFFICER (A) at the WEIR HOSPITAL, Weir-road, Balham, S.W.12, to become vacant on August 12th, 1940. If held by an R Practitioner the appointment will be limited to six months. Salary at the rate of £150 per annum, with full residential emoluments.

Applications, stating age, qualifications, and nationality, and accompanied by copies of three recent testimonials, should be sent to the Honorary Secretary-Superintendent.

Borough of Llanelly.

ASSISTANT (LADY) MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Town Council invite applications for the above whole-time appointment from duly qualified single Lady Medical Practitioners. Applicants must have had at least three years' experience in the medical profession and special experience in midwifery and child welfare work. Possession of the Diploma in Public Health will be an advantage.

Salary £500, increasing by annual increments of £25 to £700 per annum.

The officer will be required primarily to carry out duties relative to Maternity and Child Welfare and School Children, and any assigned work in connection with the Medical Services of the Borough under the direction of the Medical Officer of Health.

The appointment is subject to the Superannuation Act.

The selected candidate must pass a satisfactory medical examination.

Prescribed application forms may be obtained from the undersigned, and when sent in should be endorsed "Assistant Medical Officer" and addressed so as to be delivered to the undersigned on or before 9th August, 1940.

DAVID J. PHILLIPS, Town Clerk.

Town Hall, Llanelly, 16th July, 1940.

Sussex Eye Hospital, Eastern Road, BRIGHTON. (48 Beds.)

Applications are invited from Registered Medical Practitioners (Male) for the appointment of a HOUSE SURGEON (B2) vacancy immediately. Salary is at the rate of £150 per annum with full residential emoluments. If held by an R Practitioner the appointment is limited to six months.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned.

PERCY F. SPOONER, Assistant Secretary.

Royal United Hospital, Bath.

HOUSE SURGEON (A) required at once (Obstetrics and Gynæcology and Anæsthetics).

Salary £150 per annum, with board, residence, and laundry.

The appointment is for six months and candidates must be Male and of British nationality.

Applications, stating age, qualifications, and experience, together with a copy of three testimonials, to be addressed to the undersigned immediately.

J. LAWRENCE MEARS, Secretary-Superintendent.

July 11th, 1940.

Bedford County Hospital.

Applications are invited from registered Medical Practitioners, Male and Female, for the appointment of a FIRST HOUSE SURGEON (A) to become vacant on August 8th, including R Practitioners within six months of qualification. Appointment for a period of six months. Salary £155 per annum, with full residential emoluments.

Application, stating age, qualifications with dates, and nationality, together with three recent testimonials, to be sent to the Secretary, Hon. Medical Staff Committee, as soon as possible.

The Chester Royal Infirmary.

The Council of Management have created the appointment of ASSISTANT PATHOLOGIST.

The appointment is whole time, and the emolument is £300, rising by annual increments of £25 to £400 per annum. The candidate appointed must reside within five miles of Chester Cross.

Applications, with copies of three recent testimonials, to be sent to the Chairman, Royal Infirmary, Chester, immediately.

June 24th, 1940. J. ROWSE MITCHELL, Secretary.

The Children's Hospital, Sheffield. (Inc.) (157 Beds.)

Applications are invited from Registered Medical Practitioners (Male and Female) for the appointment of HOUSE SURGEON "A" to fill the present vacancy, including R Practitioners within six months of qualification. If held by an R Practitioner, appointment will be limited to six months. Salary is at the rate of £100 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned as soon as possible.

T. H. G. GARTLAND, Superintendent and Secretary.

Coventry and Warwickshire Hospital.

Applications are invited from registered Medical Practitioners, Male and Female, for the appointment of a HOUSE SURGEON (A) to become vacant immediately, including R Practitioners within six months of qualification. If held by an R Practitioner, appointment will be limited to six months. Salary is at the rate of £150 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned immediately.

S. CECIL HILL, House Governor and Secretary.

Torbay Hospital, Torquay.

Applications are invited from registered Medical Practitioners (Male) for the appointments of HOUSE PHYSICIAN and HOUSE SURGEON (A) to become vacant end of July, including R Practitioners within six months of qualification. If held by an R Practitioner, appointment will be limited to six months. Otherwise it will be for a period mutually satisfactory. Salary is at the rate of £125 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned not later than July 25th.

E. L. GRIST, Secretary.

10th July, 1940.

The Bolton Royal Infirmary. (318 beds, including two Auxiliary Hospitals.)

A vacancy occurs for a HOUSE SURGEON (Male or Female) mainly in charge of GYNÆCOLOGICAL, EAR, NOSE, AND THROAT DEPARTMENTS. A appointment. If held by an R Practitioner, the appointment will be limited to six months. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, and experience, together with copies of testimonials, to be forwarded to the undersigned as soon as possible.

H. AUBREY FROGGATT,
Superintendent-Secretary.

Essex County Council.

OLDCHURCH COUNTY HOSPITAL, ROMFORD.

JUNIOR RESIDENT MEDICAL OFFICER (B2).

The County Council of the Administrative County of Essex invite applications for the appointment of Junior Resident Medical Officer at the Oldchurch County Hospital, Romford, from registered Medical Practitioners, including R Practitioners who hold A posts and who have not completed a five months' tenure of those posts.

The appointment would normally be for a period of one year, but if the successful applicant is an R Practitioner the appointment will be limited to six months.

The salary payable will be at the rate of £250 per annum, together with the usual indoor emoluments valued at £160 per annum, and the successful candidate will be required to pass a medical examination and will be subject to the Council's Sick Pay Rules and Regulations, a copy of which will be forwarded on application.

Applications on the prescribed form, obtainable from the undersigned, should be addressed to me and delivered at the County Hall, Chelmsford, not later than 10 A.M. on Wednesday, the 24th day of July, 1940.

E. S. HOLCROFT, Clerk of the County Council.

County Hall, Chelmsford, 9th July, 1940.

The Prince of Wales's Hospital, Greenbank-road, PLYMOUTH. (Formerly the South Devon and East Cornwall Hospital.) (254 Beds.)

Applications are invited from registered Medical Practitioners, Male and Female, for the appointments of a HOUSE PHYSICIAN (A) and RESIDENT ANÆSTHETIST AND HOUSE SURGEON to the SPECIAL DEPARTMENTS (A), both posts to become vacant on 10th September, including R Practitioners within six months of qualification. If held by an R Practitioner appointment will be limited to six months. Otherwise it will be subject to renewal. Salaries are at the rate of £130 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned not later than 26th July.

ARTHUR R. CASH, General Superintendent.

The Hospital for Sick Children, Great North-road, NEWCASTLE UPON TYNE, 2.

Applications are invited from registered Medical Practitioners, Male or Female, for the appointment of—

(*a*) One HOUSE PHYSICIAN (A);
(*b*) One HOUSE SURGEON (A);

to become vacant on 1st September, 1940. The appointments will be limited to six months. Salary is at the rate of £100 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, to be sent to—

J. B. CAIRNCROSS, C.A., House Governor and Secretary.

July, 1940.

Children's Hospital, Nottingham.

Applications are invited for the post (B1) of RESIDENT HOUSE SURGEON (Woman). The salary will be at the rate of £200 per annum, with apartments, board, and laundry. The appointment will be for six months, duties to commence on the 1st September, 1940.

Applications, together with testimonials, stating age, nationality, qualifications, and experience, to be sent to the Honorary Secretary, 1, King John's Chambers, Bridlesmith Gate, Nottingham, on or before Tuesday, 23rd July, 1940. Selected candidates will be required to attend at the Hospital for a personal interview.

Derbyshire Royal Infirmary, Derby. (General Hospital. 416 Beds.)

Recognised under F.R.C.S. Regulations.

Applications are invited for the post of RESIDENT ANÆSTHETIST (Male or Female). A appointment.

Candidates must be qualified and registered under the Medical Acts, and unmarried. If held by an R Practitioner the appointment will be limited to six months.

Salary will be £150 per annum, with apartments, board, &c.

Applications, with copies of testimonials, to be sent to the undersigned.

ARTHUR TAYLOR, Superintendent and Secretary.

1st July, 1940.

Salisbury General Infirmary. (Voluntary Hospital—225 Beds.)

APPOINTMENT OF HOUSE SURGEON (A).

Applications are invited from registered Medical Practitioners (Male), including R Practitioners within six months of qualification, for the vacant post of House Surgeon (A). If held by an R Practitioner, appointment will be limited to six months. Salary is at the rate of £125 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned as soon as possible.

JOHN WILLIAMS, Secretary-Superintendent.

Naburn Emergency Hospital.

APPOINTMENT OF RESIDENT MEDICAL OFFICERS.

Applications are invited from registered Medical Practitioners for three appointments as Resident Medical Officers at the Ministry of Health Emergency Hospital attached to the York City Mental Hospital at Naburn, near York.

Two of the appointments will be "A" Posts as defined by the Central War Medical Committee and one appointment will be a "B2" Post.

The salary for "A" Posts will be £200 per annum, with full residential emoluments.

The salary for the "B2" Post will be £350 per annum, with similar emoluments.

The "A" appointments are open to R Practitioners within six months of qualification and to women Practitioners. An "A" appointment held by an R Practitioner will be limited to a period of six months. The "B2" appointment is open to R Practitioners who are now holding "A" posts and to others with experience, including women Practitioners. If held by an R Practitioner the "B2" appointment will be limited to six months.

The engagements will be subject to one month's notice and to the conditions from time to time applying to Medical Officers under the Ministry's Emergency Hospital Scheme.

Applications, stating age, nationality, qualifications with dates, and experience, and accompanied by copies of three recent testimonials, should be sent to the undersigned not later than July 26th.

R. A. HOOPER, Medical Superintendent.

City Mental Hospital, York.

County Borough of Dewsbury.

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER (Male or Female).

Applications are invited from duly qualified and registered Medical Practitioners for the post of Assistant Medical Officer of Health and Assistant School Medical Officer.

Applicants should have had at least three years' experience since qualification, and possess the D.P.H. The duties include School Medical Work (including refractions), Maternity and Child Welfare, and Infectious Diseases.

The salary is £500 per annum, rising by annual increments of £25 to a maximum of £700, and a motor-car allowance of £50 per annum. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Particulars of the duties and terms and conditions of the appointment, together with application form, may be obtained from Dr. J. F. Galloway, Medical Officer of Health, Public Health Department, Municipal Buildings, Halifax-road, Dewsbury, to whom applications, accompanied by copies of not more than three recent testimonials, should be delivered not later than Wednesday, 31st July, 1940.

Canvassing in any form will be a disqualification.

HOLLAND BOOTH, Town Clerk.

Town Hall, Dewsbury, 9th July, 1940.

City and County of Newcastle upon TYNE.

SHOTLEY BRIDGE EMERGENCY HOSPITAL.

RESIDENT MEDICAL OFFICER (B2).

Applications are invited from registered Medical Practitioners (Male), including R Practitioners who hold A Posts and who have not completed five months' tenure of those posts, for the position of Resident Medical Officer (B2). If held by an R Practitioner the appointment will be limited to six months, otherwise it will be for a period of twelve months.

The salary is at the rate of £350 per annum, together with full residential emoluments.

Applications, stating age, qualifications with dates, nationality, and present post, together with not more than three recent testimonials, must be submitted to the Medical Officer of Health, Town Hall, Newcastle upon Tyne, 1, immediately.

8th July, 1940.

General Hospital, Nottingham.

(389 Beds.)

EAR, NOSE, AND THROAT DEPARTMENT.

Applications are invited from registered Medical Practitioners (Male and Female) for the appointment of a HOUSE SURGEON (A) for the above Department containing 40 Beds and a large Out-patient Department; duties to commence as soon as possible. The appointment is for six months. Salary at the rate of £200 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned immediately.

HENRY M. STANLEY, House Governor and Secretary.

Royal Liverpool Babies Hospital, LIVERPOOL.

APPOINTMENT OF HOUSE PHYSICIAN.

Applications are invited from registered Medical Practitioners (Female) for the appointment of House Physician to become vacant immediately. Salary is at the rate of £120 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned not later than July 22nd.

THE SECRETARY, Liverpool Child Welfare Association, 9, Copperas-hill, Liverpool, 3.

Bristol Royal Hospital.

(Incorporating Bristol Royal Infirmary and Bristol General Hospital.)

Applications are invited for the following resident appointments for the six months commencing September 1st, 1940:—

A appointments:
- Four HOUSE PHYSICIANS.
- One HOUSE PHYSICIAN to the SKIN and RADIOLOGICAL DEPARTMENTS.
- Eight HOUSE SURGEONS.
- Two HOUSE SURGEONS to the GYNÆCOLOGICAL DEPARTMENT.
- Two HOUSE SURGEONS to the E.N.T. DEPARTMENT.
- One HOUSE SURGEON to the OUT-PATIENT FRACTURE DEPARTMENT.
- One HOUSE SURGEON to the IN-PATIENT FRACTURE DEPARTMENT.

B2 appointments:
- Two HOUSE SURGEONS to the CASUALTY DEPARTMENTS.

Salaries at the rate of £80 per annum, except in the case of the Casualty House Surgeons who will receive salaries at the rate of £150 per annum.

Candidates, who must be registered Medical Practitioners, to send in their applications (on forms to be obtained from the undersigned) which must be returned on or before July 27th, 1940, together with copies of not more than three testimonials. The elected candidates must become members of a Medical Defence Association before taking up their appointment.

ELLIS C. SMITH, F.C.I.S., Secretary and House Governor.

Bristol Royal Infirmary.

Hull Royal Infirmary.

Applications are invited from registered Medical Practitioners, Male and Female, for the appointment of CASUALTY OFFICER (A) vacant now, including R Practitioners within six months of qualification.

Applications are also invited for the post of HOUSE SURGEON to the OPHTHALMIC and E.N.T. DEPARTMENTS (B2) vacant now, including R Practitioners who hold A Posts and who have not completed a five months' tenure of those posts.

If either of the above posts is held by an R Practitioner the appointment will be limited to six months.

Salary is at the rate of £150 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by recent testimonials, should be sent to the undersigned.

R. J. CARLESS, House Governor.

Chesterfield and North Derbyshire ROYAL HOSPITAL.

(220 Surgical and Medical Beds.)

HOUSE SURGEON to OPHTHALMIC and EAR, NOSE, AND THROAT DEPARTMENTS. (A appointment.)

Applications are invited from fully qualified Men for the above post.

The appointment is for six months, to commence as soon as possible.

Salary at the rate of £150 per annum, with board, apartments, and laundry.

Applications, stating age and nationality, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

M. H. BOONE, Superintendent and Secretary.

6th July, 1940.

Lincoln County Hospital.

APPOINTMENT OF A HOUSE SURGEON (A).

Applications are invited from registered Medical Practitioners for the appointment of Junior House Surgeon (A), including R Practitioners within six months of qualification. The appointment is for six months. Salary is at the rate of £150 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, nationality, and accompanied by three recent testimonials, should be sent to the undersigned.

ARTHUR MOORE, Secretary-Superintendent.

Lincoln, 7th July, 1940.

Huddersfield Royal Infirmary.

(321 Beds.)

Male HOUSE SURGEON (an A appointment) required, to be attached to EYE, EAR, NOSE, AND THROAT DEPARTMENTS. Duties include the administration of anæsthetics. Salary will be at the rate of £150 per annum, with board, residence, and laundry. Appointment for six months, subject to renewal for a similar period. If held by an R Practitioner the appointment will be limited to six months.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. J. JOHNSON, General Superintendent and Secretary.

Huddersfield Royal Infirmary.

(321 Beds.)

Male HOUSE SURGEON (an A appointment) required, to be attached to the ABNORMAL MATERNITY DEPARTMENT. Duties, which include the administration of anæsthetics, to commence on August 1st, 1940. Salary will be at the rate of £150 per annum, with board, residence, and laundry.

Appointment for six months, subject to renewal for a similar period. If held by an R Practitioner, the appointment will be limited to six months.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. J. JOHNSON, General Superintendent and Secretary.

Altrincham General Hospital.
(100 Beds.)

Applications are invited from registered Medical Practitioners for the appointment of HOUSE SURGEON (B2), to become vacant on 1st September. Six months' appointment for registered Practitioners. Salary £150, with the usual board and laundry, &c.

Apply, stating age, qualifications with dates, nationality, &c., to the undersigned not later than 24th July.

E. A. BIDEN, General Superintendent and Secretary.

East Suffolk and Ipswich Hospital.
(380 Beds.—8 Residents.)

Applications are invited from registered Medical Practitioners for the appointment of HOUSE PHYSICIAN (B2) to become vacant in September, including R Practitioners who hold A Posts and who have not completed a five months' tenure of those posts. The appointment is for six months. Salary at the rate of £144 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of three recent testimonials, to be sent to the undersigned.

ARTHUR GRIFFITHS, Secretary.

The Hospital, Ipswich, 6th July, 1940.

East Suffolk and Ipswich Hospital.
(380 Beds.—8 Residents.)

Applications are invited from registered Medical Practitioners for the appointment of a HOUSE SURGEON (A) and a CASUALTY OFFICER (A) to become vacant in September, including R Practitioners within six months of qualification. Appointment will be for six months. Salary at the rate of £144 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned.

ARTHUR GRIFFITHS, Secretary.

The Hospital, Ipswich, 6th July, 1940.

West Cornwall Hospital, Penzance.
(82 Beds and 104 Emergency Beds.)

Applications are invited from registered Medical Practitioners (Male) for the appointment of a HOUSE SURGEON (A) to become vacant on 1st August, 1940, including R Practitioners within six months of qualification. If held by an R Practitioner, appointment will be limited to six months. Salary is at rate of £150 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned immediately.

J. E. HOLLINGTON, Hon. Secretary.

Chorley and District Hospital,
CHORLEY, LANCS.
(Voluntary General Hospital with 75 Beds.)

Applications are invited from registered Medical Practitioners, Male and Female, for the appointment of HOUSE SURGEON (A) now vacant, including R Practitioners within six months of qualification. If held by an R Practitioner, appointment will be limited to six months, otherwise the appointment is renewable for a further period. Salary £150 per annum.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned at once.

C. H. SPENCE, Secretary-Superintendent.

The Royal Berkshire Hospital,
READING.

Applications are invited from registered Medical Practitioners, Male, for the appointment of HOUSE SURGEON to the SPECIAL DEPARTMENTS (Ear, Nose, and Throat, and Eye) and RESIDENT MEDICAL OFFICER at the BLAGRAVE BRANCH HOSPITAL (B2) to become vacant on August 1st, 1940, including R Practitioners who hold A posts and who have not completed a five months' tenure of those posts.

The appointment is for six months. The salary is at the rate of £150 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of three recent testimonials, should be sent to the undersigned immediately.

H. E. RYAN, Secretary and House Governor.

Royal Sheffield Infirmary and Hospital.
THE ROYAL INFIRMARY, SHEFFIELD, 6.
(476 Beds.)

Applications are invited from registered Medical Practitioners for the following appointments now vacant:—

(1) SURGICAL FIRST ASSISTANT (B1).
(2) OPHTHALMIC CLINICAL ASSISTANT (B1).

Applicants should have held house appointments and had surgical experience. In the case of (1) preference will be given to candidates holding diploma of F.R.C.S. Suitably qualified R Practitioners holding B2 or B1 appointments are invited to apply. Salary is at the rate of £300 per annum, non-resident.

Applications, stating age, nationality, qualifications with dates, experience, and details of previous appointments, and accompanied by copies of three recent testimonials, should be sent to the undersigned forthwith.

H. KINGSLEY PEARCE,
General Superintendent and Secretary.

The Royal Infirmary, Sheffield, 6 12th July, 1940.

Walsall General Hospital.

Applications are invited from male registered Medical Practitioners for the appointment of CASUALTY HOUSE SURGEON "A," immediate vacancy. Including "R" Practitioners within six months of qualification.

The appointment will be for six months. Salary at the rate of £150 per annum, with full residential emoluments.

Applications, stating age, qualifications, with dates and nationality, accompanied by copies of three recent testimonials, should be sent to the undersigned immediately.

WALTER FRANCOMBE, House Governor.

Addenbrooke's Hospital, Cambridge.

APPOINTMENT OF A HOUSE SURGEON (A).

Applications are invited from registered Medical Practitioners, Male and Female, for the appointment of a House Surgeon (A), to become vacant on September 1st, 1940, including R Practitioners within six months of qualification. The appointment will be for a period of six months. Salary is at the rate of £130 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned not later than August 7th, 1940.

J. A. BEARDSALL, Secretary-Superintendent.

Royal Eye and Ear Hospital, Bradford.
(94 Beds.)

Applications are invited from registered Medical Practitioners (Male and Female) for the appointment of HOUSE SURGEON (A) now vacant, including R Practitioners within six months of qualification; if held by an R Practitioner the appointment will be limited to six months, otherwise the appointment is renewable for a further period. Salary £180 per annum.

Applications, stating age, qualifications, and accompanied by three recent testimonials, should be sent to the undersigned.

F. BRIGGS, Secretary-Superintendent.

Royal National Sanatorium,
BOURNEMOUTH.

Applications are invited from registered Medical Practitioners for the appointment of a RESIDENT ASSISTANT MEDICAL OFFICER (A) (Male or Female), including R Practitioners within six months of qualification. If held by an R practitioner, appointment will be limited to six months. Otherwise it will be for one year. Salary £200 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by recent testimonials, should be sent to the undersigned not later than July 29th.

A. G. A. MAJOR, Secretary.

County Council of the West Riding
OF YORKSHIRE.

PUBLIC HEALTH DEPARTMENT.

EMERGENCY HOSPITAL SCHEME.
APPOINTMENTS OF HOUSE SURGEONS (A).

Applications are invited from registered Medical Practitioners, Male and Female, including R Practitioners within six months of qualification, for the above appointments in various emergency hospitals in the Administrative County of the West Riding of Yorkshire.

The appointments will be for a period of six months in the first instance, renewable for a further six months in the case of Medical Practitioners who have not registered under the Military Service Acts.

Salary will be at the rate of £200 per annum, with full residential emoluments.

Applications, stating age, qualifications (with dates), and nationality, and accompanied by copies of three recent testimonials, should be sent to the County Medical Officer, County Hall, Wakefield, as soon as possible.

J. CHARLES MCGRATH, Clerk of the County Council.

County Hall, Wakefield, July, 1940.

Taunton and Somerset Hospital,
TAUNTON.

An HONORARY ASSISTANT PATHOLOGIST, resident sufficiently near the Hospital to enable him to discharge his duties, will be elected by the Committee at an early date.

Applications (endorsed "Assistant Pathologist"), with qualifications and testimonials, to be sent on or before August 10th next to— F. J. J. STACEY, Secretary.

County Mental Hospital, Lancaster.

Applications are invited from registered Medical Practitioners (Female) for the post of ASSISTANT MEDICAL OFFICER (B1). Candidates must be single and under thirty-five years of age. Commencing salary £550 per annum, rising to £600 after one year's satisfactory service, with further increases on promotion, subject to a deduction of 3 per cent. under the Asylums Officers' Superannuation Act, 1909. There are no emoluments. The selected candidate will be required to live in the Hospital, and she will be provided with board, lodging, &c., for which a charge of £150 a year is made. The possession of a Diploma in Psychological Medicine will entitle the Officer to an additional £50 per annum.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of three recent testimonials, should be sent to the Medical Superintendent not later than August 2nd, 1940.

The Royal Hospital, Wolverhampton.

(Incorporated under Royal Charter.)

GYNÆCOLOGICAL AND OBSTETRIC DEPARTMENT.
(63 Beds.)

Applications are invited from registered Medical Practitioners, Female, for the appointment of an ASSISTANT RESIDENT MEDICAL OFFICER to become vacant 15th August. Salary at the rate of £100 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned immediately.

W. H. HARPER, House Governor.

Wolverhampton, 15th July, 1940.

Staffordshire, Wolverhampton, and DUDLEY JOINT BOARD FOR TUBERCULOSIS.

PRESTWOOD SANATORIUM. (200 Beds.)

Applications are invited from registered Medical Practitioners, including R Practitioners who hold A Posts, for the post (B2) of JUNIOR ASSISTANT MEDICAL OFFICER (Male) at the above-named Sanatorium, which is approximately nine miles from Wolverhampton. The successful candidate will have opportunities of obtaining experience in the work of a Dispensary. The appointment will be for six months in the first instance, renewable for a further maximum period of six months. If held by an R Practitioner the appointment will be limited to six months.

Salary at the rate of £300 per annum, with board, residence, and laundry.

Forms of application may be obtained from the undersigned and should be returned by first post on the 3rd August, 1940, together with copies of not more than three recent testimonials.

H. L. UNDERWOOD, Clerk of the Joint Board.

County Buildings, Stafford, 12th July, 1940.

Hove General Hospital, Hove.

Applications are invited for the undermentioned appointments, both of which are for six months in the case of R Practitioners but would be extended in the case of non-R Practitioners. Applications, stating age, qualifications, &c., and accompanied by copies of testimonials, should reach the undersigned as soon as possible.

1. JUNIOR R.M.O. (A).

Applications invited from registered Medical Practitioners, including R Practitioners within six months of qualification. The salary is at the rate of £120 per annum, with full residential emoluments.

2. SENIOR R.M.O. (B2).

Applications invited from registered Medical Practitioners, including R Practitioners who hold A Posts and who have not yet completed a five months' tenure of these posts. Salary at the rate of £150 per annum, with full residential emoluments.

R. A. KINGSNORTH, Acting Secretary.

Doncaster Royal Infirmary.

HOUSE SURGEON (Male), A appointment, required for August 1st. The appointment is for six months. Six House Surgeons are Resident.

Salary at the rate of £175 per annum, with residence, board, and laundry.

This large industrial area offers excellent opportunities for gaining experience.

Applications, accompanied by not more than three testimonials, to be sent to the undersigned immediately.

R. LANCASTER, Secretary-Superintendent.

Berkshire County Council.

TEMPORARY ASSISTANT MEDICAL OFFICER FOR A.R.P. CASUALTY SERVICES.

Applications are invited from duly qualified Medical Practitioners (Male) for the appointment of an Assistant Medical Officer at a salary of £500 per annum, rising by annual increments of £25 to £700 per annum, and travelling expenses according to the County scale.

The duties of the appointment will be to assist in the training and supervision of the A.R.P. personnel, supervision of First-aid Posts and equipment, also to assist in the Emergency Hospital Scheme and to carry out such duties as the County Medical Officer may direct. The appointment will be terminable at any time by one month's notice on either side.

Forms of application may be obtained from the undersigned and should be returned, together with copies of testimonials, by the first post on Wednesday, 7th August, 1940.

H. J. C. NEOBARD, Clerk of the Council.

Shire Hall, Reading, 17th July, 1940.

Hospital of St. Cross, Rugby.

(126 Beds.)

APPOINTMENT OF A HOUSE SURGEON (A).

Applications are invited from registered Medical Practitioners, Male and Female, for the appointment of a House Surgeon (A) to become vacant immediately, including R Practitioners within six months of qualification. If held by an R Practitioner, appointment will be limited to six months; otherwise it will be renewable for a further six months.

Salary is at the rate of £150 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned.

HARVEY RACE, F.C.I.S., F.H.O.A., Superintendent and Secretary.

Norfolk & Norwich Hospital, Norwich.

(448 Beds.)

Applications are invited from registered Medical Practitioners (Male) and R Practitioners within six months of qualification for the following A appointments: (1) CASUALTY OFFICER; (2) HOUSE SURGEON to EAR, NOSE, AND THROAT and OPHTHALMIC DEPARTMENTS.

If held by R Practitioners, appointments will be limited to six months. Salary is at the rate of £120 per annum, with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned as soon as possible.

FRANK INCH, House Governor and Secretary.

18th July, 1940.

Nottinghamshire County Council.

EMERGENCY HOSPITALS.

Applications are invited from registered Medical Practitioners (Male) including R Practitioners within six months of qualification, for seven appointments as HOUSE SURGEONS (A) at the undermentioned hospitals:—

KILTON HILL COUNTY HOSPITAL, WORKSOP	3
COUNTY EMERGENCY HOSPITAL, MANSFIELD	2
BASFORD COUNTY EMERGENCY HOSPITAL, BULWELL, NOTTINGHAM	1
COUNTY EMERGENCY HOSPITAL, NEWARK	1

If held by R Practitioners, appointments will be limited to six months, otherwise they will be for a period of six months in the first instance.

The salary for each appointment will be £150 per annum with full residential emoluments or cash equivalent.

Applications, stating age, qualifications, with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to me not later than 1st August, 1940.

K. TWEEDALE MEABY, Clerk of the County Council.

Shire Hall, Nottingham, 16th July, 1940.

Birmingham and Midland Eye Hospital.

(114 Beds.)

Applications are invited from duly qualified Medical Practitioners for the post of HOUSE SURGEON (B2) at the above Hospital.

Salary £130 per annum (rising to £150 at the end of six months' satisfactory service), and £10 laundry allowance. If held by an R Practitioner the appointment will be limited to six months, otherwise it will be renewable.

The resident staff consists of a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials and evidence of registration, should be forwarded to the House Governor not later than 22nd July.

Church-street, Birmingham, 3.

Dewsbury and District General INFIRMARY, DEWSBURY. (100 Beds.)

Applications are invited for the post of SECOND HOUSE SURGEON (A) (Male) vacant on August 15th next, including R Practitioners within six months of qualification. If held by an R Practitioner, appointment will be limited to six months. Salary £150 per annum, with emoluments. The duties are principally those of a House Physician and Casualty Officer.

The Infirmary is a modern Voluntary Hospital and has the usual Special Departments, with Visiting Consulting Specialists in attendance.

Applications, stating age, qualifications with dates, and nationality, together with copies of recent testimonials, to be addressed to my office without delay.

FRED SMITH, Secretary-Superintendent.

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PUBLISHED by the PROPRIETORS, THE LANCET LIMITED, 7, Adam Street, Adelphi, in the County of London.
Temporary Editorial Office, 26, Temple Street, Aylesbury, Bucks (Aylesbury 315).
Printed by HAZELL, WATSON & VINEY, LTD., London and Aylesbury—Saturday, July 20, 1940.
PRINTED IN GREAT BRITAIN—Entered as Second Class at the New York, U.S.A., Office.

County Borough of Preston.

SHAROE GREEN HOSPITAL.
(250 Beds.)

JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (Female).

Applications are invited from fully qualified and registered Practitioners for the above appointment. Salary at the rate of £150 per annum, with full board and residence. The appointment will be for a period of six months and can be renewed for a period not exceeding six months at a salary at the rate of £200.

Applications, stating age, qualifications, experience, and nationality, together with copies of three recent testimonials, should be forwarded to the Medical Superintendent, Sharoe-green Hospital, Fulwood, Preston.

County Borough of Croydon.

WARLINGHAM PARK HOSPITAL
(For Nervous and Mental Disorders), WARLINGHAM, SURREY.

HOUSE PHYSICIAN (B2) (Lady or Gentleman) required. R Practitioners who hold A appointments may apply. Six months' appointment.

Excellent opportunities for experience in all modern methods of treatment, including insulin, cardiazol, and electric shock therapies, and in out-patient clinics, including child guidance, and the scientific treatment of delinquency. Salary at the rate of £200 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, to the Medical Superintendent.

Keighley and District Victoria Hospital,

YORKSHIRE, WEST RIDING.
(140 Beds.—Two Residents.)

APPOINTMENT OF RESIDENT MEDICAL OFFICERS.

Applications are invited from registered Medical Practitioners (Female) for the following posts:—

FIRST RESIDENT MEDICAL OFFICER. Salary £160 per annum, to commence 12th August, 1940.

SECOND RESIDENT MEDICAL OFFICER. Salary £120 per annum, to commence 1st September, 1940.

Proof of registration to be furnished before appointment.

Full residential emoluments. Term, six months renewable.

Applications, with particulars of age, experience, and nationality, together with copies of two recent testimonials, to be sent to the undersigned not later than 3rd August, 1940.

J. YOUNG, Secretary-Superintendent.

City of Manchester.

WITHINGTON HOSPITAL. (1150 Beds.)

APPOINTMENT OF RESIDENT OBSTETRICAL OFFICER (B1).

The Public Health Committee invites applications from registered Medical Practitioners for the post of Resident Obstetrical Officer at the above-named Hospital.

The salary for the appointment commences at £350 per annum, rising by annual increments of £25 to a maximum of £450, with board, residence, and laundry in addition, subject to the Manchester Corporation conditions of service.

Candidates must have had previous experience in obstetrics and gynæcology, and preference will be given to those holding a higher qualification.

Full information and forms of application may be obtained from the Medical Officer of Health, Hospitals Administration Section, P.O. Box No. 399, Town Hall, Manchester, 2, and applications for the post must be received by him not later than 29th July, 1940.

Canvassing in any form is prohibited.

R. H. ADCOCK, Town Clerk.

Town Hall, Manchester, 2, 8th July, 1940.

Grimsby and District Hospital.

APPOINTMENT OF A RESIDENT ANÆSTHETIST (A).

Applications are invited from registered Medical Practitioners for the appointment of an Anæsthetist (A) including R Practitioners within six months of qualification. If held by an R Practitioner, appointment will be limited to six months. Salary is £175 per annum.

Applications, stating age, qualifications, with dates, and nationality, and accompanied by copies of three recent testimonials, should be sent to the undersigned.

H. B. COATES, Secretary-Superintendent.

15th July, 1940.

WHEN supper's over, and the board is clear,
Pipes of TOM LONG invariably appear.

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